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Pathology of Tumours of the Corpus Uteri.

Being the Ingleby Lectures for 1910 delivered in the University of Birmingham.

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THE Ingleby Lectureship was founded to encourage the study of the diseases of women and children. It has been a happy endowment. For many years the subject of diseases of women has flourished in this city. Its exponents, a succession of able workers, have succeeded in gaining a widespread and growing renown, not only for themselves, but also for the Medical School of Birmingham. The names of Lawson Tait, Malins, Savage (both father and son), John Taylor, Wilson, Martin, Purslow, Hewetson, Furneaux Jordan, Edge and others will occur to mind. The pathological museum, an educative instrument of the highest importance to every medical school, has benefited by their work and their gifts. Whilst all its departments—medicine, surgery, obstetrics and gynæcology—have made great progress of recent years, none has made more than the subject of diseases of women. Through the absorption of the old anatomical museum, it is now housed in more fitting and commodious quarters. Many new and valuable specimens have been added. Their preparation and description have entailed much time and labour, given unsparingly by the past honorary assistant curator in this department, Dr. Thomas Wilson, and by his successor, Mr. John Hewetson. Thanks to the public spirit and generosity of the many donors of specimens, and to the skill and zeal of the honorary curators, the pathology of diseases of women can be studied in this school under highly favourable conditions, which have become more or less known to recent students and to other workers within its academic walls, but are still largely unknown to the wider medical circle outside, whose interest in them is considerable. The delivery of the Ingleby Lectures seems to provide a fitting opportunity to

make this information more widely known. The subject of the tumours of the body of the uterus affords occasion for the discussion and illustration of some of the more important problems of an otherwise too comprehensive theme. It would be futile to attempt to cover the whole ground adequately within the limits of time available. Tumours of the body of the uterus are usefully divided into benign and malignant.

THE BENIGN TUMOURS.

The myoma, with its modifications, is the only benign tumour of any practical importance. It is commonly spoken of as a fibroid, but is more correctly designated a myoma or leiomyoma, or simply a leioma. It is occasionally called a hysteroma. Its frequency is so great that the uterus has become the commonest site in the body of the benign tumour.

I.—THE MYOMA.

General Characters. They are so well known that they require merely a passing notice. The great majority of these tumours grow in the body of the uterus, only some 4 per cent. to 6 per cent. occurring in the cervix. They vary greatly in size, many being quite small, almost pealike, and some of huge dimensions. The largest example in the museum of this university weighed over 60 lbs., but cases have been put on record where the weight exceeded 100 lbs. All intermediate sizes occur and they may be either sessile or pedunculated. In shape, vide Fig. 1, they tend to become rounded, though they occasionally assume a pear, heart, renal, saddlebag shape, leaf-like or lobulated appearance. The surface is smooth in most cases, though in a few it is rough, nodulated, or mulberry-like. In consistence they are firm and elastic, qualities which increase with their age and size. Small growths are thus soft as compared with large ones, but the softest are always firmer than the normal uterine wall. The terms soft and hard when applied to myomata are synonymous with small and large. Section, vide Figs. 2 and 7, reveals the most familiar and characteristic features of these tumours, the indefinite intermixture of muscle and fibrous tissue, the former in whorls and bundles of a dull grey or brown colour, everywhere interwoven with white glistening bands of the fibrous tissue. The muscle predominates in the smaller and the fibrous tissue in the larger growths. There is no distinct capsule, its place being taken by a small amount of loose fibrous tissue, which permits of the easy enucleation of the tumour from its bed within the uterine wall. In most instances, vide Fig. 3, this bed can be seen distinctly by the unaided eye, but sometimes it is so scanty as to be unobservable or absent. This is always the case in the variety known as the Adenomyoma, so that

all the latter as well as some of the ordinary myomata are not enucleable. The general pallor of the myoma is another of its striking characteristics. While it varies in degree, it is always less red than the uterine muscle, thus making it easy to distinguish between tumour tissue and uterine wall. The latter is fairly rich in blood vessels as is also the loose fibrous bed of the tumour, vide Fig. 3, but the body of the growth itself is scantily supplied with them.

Microscopic appearances, vide Fig. 4. (1) The muscular bundles run through the tumour in an irregular and indefinite way, quite unlike the orderly plan of the uterine muscle, their individual muscle cells are smaller and more closely packed together than those of the uterine wall, while their nuclei are larger. The nucleus varies even more than the cell. In the slowly growing and more typical tumours it is long and rod-like, but in those, which are young and of rapid growth, it is short and oval, more like that of an ordinary spindle-shaped connective tissue cell. Mitotic figures are very rare.

(2) The fibrous stroma has all the characters of ordinary fully formed white fibrous tissue. Elastic fibres are scanty. As already mentioned the fibrous stroma increases with the age of the tumour, so that in old growths, muscle cells may be very scanty.

(3) Blood vessels are markedly deficient throughout the substance of most fibroids, but many of them show large and prominent veins on their outer surface. In large growths they may exceed a $\frac{1}{4}$ inch in diameter. The corresponding arteries are seldom conspicuous. These veins form a plentiful plexus all over the tumour and empty themselves by many large branches into the utero-vaginal plexus of veins situated at the sides of the organ; from which, about the level of the internal os, the uterine veins, two on each side, arise and run outwards in the broad ligament. These superficial veins can be traced inwards through the uterine wall into the bed of the tumour, but rarely any further. Most of them seem to originate there, for they are very scanty throughout the body of the growth. Here and there small veins may be seen, either singly or in clusters, but numbers, comparable to those on the surface, are rarely met with. Arteries are scantier than veins, from which they are not easily distinguished owing to their exceptionally thin walls. Capillaries, both vascular and lymphatic, are more numerous. They are often the only vessels, with which large tracts of the growth seem to be provided. The lymphatics are frequently dilated into sinus-like spaces. Proliferative changes in the walls of the vessels are common and lead to the obliteration of many of them, particularly within the older and central parts of the tumours. The hindrances thus occasioned to the circulation within the tumour, aided by others consequent upon twistings of its pedicle, irregular uterine contractions and menstrual congestions, must lead to nutritional

changes and to hæmorrhagic and fluid exudates within the tumours, which in turn exercise an important influence upon their growth, life and histological characters. The freer blood supply of tumours entirely surrounded by uterine muscle (the so-called interstitial or intramural fibroids) enables them to grow faster than those surrounded partially in this way, viz., those which project into the cavity of the uterus (submucous fibroids) or from its outer surface (subserous fibroids).

(4) The lymphatic vessels, even more commonly than the veins, form conspicuous objects on the outer surface of the tumour, particularly in the neighbourhood of the broad ligament and in adhesions to the omentum, when they exist. These vessels appear as white tortuous tubes, sometimes exceeding half an inch in diameter and as bladder-like vesicles. They have very thin walls, which collapse when cut or punctured, hence they are difficult to see in the specimen after its removal from the body. Like the veins they form an abundant plexus beneath the peritoneal coat, within the uterine muscle and in the bed of the tumour. In the normal uterus, the lymphatics of the outer and middle muscular layers are large and numerous during adult sexual life; whereas during the earlier period and after the menopause, they are small and few. But, the existence of a fibroid favours their growth, so that they become larger and more numerous than in the normal mature uterus and do not atrophy after the menopause has set in. This plexus empties itself by means of several branches which pass to the sides of the uterus, where they unite to form 4 or 5 trunks which run outwards beneath the respective uterine cornua, accompanying the uterine artery and after joining the ovarian lymphatics beneath the ovary, ascend along with the ovarian vessels towards the lumbar region to enter the chain of lymphatic glands which lie near to and parallel with the aorta. A few of the lymphatics from the lower part of the body of the uterus do not take this course, but run outwards in the broad ligament at a lower level than the others and end in the inguinal glands. The course and distribution of these lymphatic vessels is of greater importance in malignant than in fibroid growths of the uterus. Within the substance of the fibroid there are only lymph sinuses and capillaries. They are most easily seen when distended, which is of frequent occurrence. Moderate distension gives a spongy appearance to the part, whilst great distension results in the formation of cysts often of large size. Hindrances to the free circulation of lymph within the tumour must be often at work. Not only may all the causes interfering with a free blood circulation retard the flow of lymph, but others, such as the mechanical pressure of the growth itself upon the thin walled lymphatic trunks within the pelvic cavity outside the growth must act in the same way.

(5) Nerves are not prominent. Though easily seen on the outer

surface of the growths they are traceable with difficulty into their substance, and consequently pain is rare. It is indeed remarkable that fibroids may grow to a great size without causing the patient more than a vague sense of discomfort. On the other hand there are some submucous fibroids in which pain is present. It is also of such common occurrence as to be of diagnostic importance in fibroids which have undergone the so-called "red degeneration" and in the variety known as "adenomyomata."

The effect of the growths upon the *size*, *shape*, and *position* of the uterus is of great practical importance. There is naturally an increase in size of the uterine mass, but the uterus itself may not take any part in this enlargement. It may indeed be smaller than normal even when the fibroids are large (vide Fig. 5.) In most cases, however, there is a true hypertrophy of the uterine wall causing some enlargement of the organ, due in all probability to stimulation by the fibroids, for it gradually subsides after their removal. The extent of this enlargement is never great, though, when it is uniform, it may simulate early pregnancy (vide Fig. 6). More commonly the uterus assumes an irregular shape, due to inequality of growth on the part of the tumours. The whole mass is confined for a time within the pelvis, but later pushes itself up into the abdomen. It not infrequently happens that the patient is first led to seek advice by the appearance of a smooth hard painless swelling in the pubic region. When the uterine body is distinguishable from the tumours, it is usually displaced, tumours situated in the posterior wall, pushing it forwards; in the anterior wall, backwards; laterally, sideways. It is only in cases in which several growths are scattered diffusely throughout its walls that it retains its shape. Similarly the cervix may be ante or retroflexed or displaced laterally or downwards.

The *uterine cavity* is usually enlarged, but in the case of some fundal and lateral tumours it is unaltered or occasionally even smaller than normal (vide Fig. 7). It is sometimes distended and may contain blood or pus. It is generally distorted, assuming all sorts of shapes, which interfere with the passage of a sound (vide Figs. 8 and 9). Occasionally it is partially obliterated. The mucous membrane may be pale, congested or marked by old or recent hæmorrhages. It may be thinned, thickened or raised into polypoid protuberances (vide Fig. 10), but it is often unaltered, even when the cavity is much distorted and encroached upon by the tumours. Microscopic examination, however, may show that it is considerably stretched and pulled out of place, the endometrial glands being parallel with, instead of more or less perpendicular to the surface (vide Fig. 11). The covering epithelium is generally preserved even when the whole endometrium is much thinned, but it may be flattened or even proliferated and form more than one layer. The veins are

often distended and may be thrombosed. The cellular tissue of the endometrium and the glands may be infiltrated with blood. Much granular blood pigment may be present either free or within leucocytes. No actual rupture of blood vessels can be made out, but their walls are in such cases looser and more spongy than usual, permitting of a general oozing of blood from them into the surrounding tissues and into the uterine cavity. It seems to be merely an exaggeration of the process which constitutes the menstrual flow and thus tends to increase the ordinary menstrual loss. It must be borne in mind that the great majority of fibroids have little or no influence in this direction. They do not affect the menstrual function. It is only when they encroach upon the endometrium and bulge into the uterine cavity, so as to be distinctly submucous, that the congestive and hæmorrhagic changes occur. Even then, they rarely cause loss of blood except at the menstrual periods, suggesting that they have to be aided by the physiologically produced congestion of the menstrual period before they can set up a menorrhagia. In a few cases, in which there is intermenstrual loss of blood, they may be capable by themselves of causing a hæmorrhagic discharge. The uterine glands may become blocked, as a result of pressure or displacement, and distended into pin head or pea like blebs filled with clear fluid, projecting from the mucous membrane. The epithelial lining of these cysts may remain unaltered, be flattened out, disappear or be proliferated into several layers. Atrophy of the glands is another result. Hypertrophy and active branching of the glands occasionally occurs and these new acini may grow out of the endometrium and penetrate for some distance into the muscular substance of the tumours. The muscle in rare instances may push its way inwards between the glands even as far as the epithelium. This penetration of muscle by the glands of the deeper part of the endometrium is observed to a certain extent in the normal uterus, but it occurs more frequently and to a greater extent when fibroids are present. It is the special feature of the variety known as adenomyoma. It has to be borne in mind in examining curettings in cases of tumours of the uterus for signs of malignancy. In all other situations, such an invasion of muscle by glands, belonging to a mucous membrane, is strongly presumptive of malignancy; but it has no such significance in the uterus.

Classification of Fibroids. The simple classification based upon their anatomical position is well known and has the merit of convenience. Those projecting from the outer surface of the uterine wall are covered by peritoneum and hence named *subserous*, those surrounded on all sides by uterine muscle, whether projecting outwards or inwards are named *interstitial* or *intramural*, those which bulge into the uterine cavity, remaining more or less covered by the endometrium, are named *submucous*, and those which push their

way among the tissues of the broad ligament are named *intraligamentous.*

Special characters of the varieties. The general characters already enumerated apply equally to all varieties. On the other hand certain special characters, determined largely by anatomical situations and relationships, apply particularly to certain of these varieties and are best dealt with separately.

The *subserous variety.* The outstanding special character of this variety and also, though less markedly, of the interstitial variety, is the tendency for adhesions to arise between the tumours and neighbouring organs and structures. The omentum, the Fallopian tubes, the ovaries, the intestine, both large and small, the vermiform appendix, the rectum, the bladder or the abdominal wall may be bound more or less firmly by fibrous adhesions to the fibroid uterus. These adhesions are the result of continued friction aided by toxic substances generated within the tumours on the one hand and within the viscus on the other hand. The toxins coming from the tumours are mostly the result of anæmic degenerations, whilst those from the viscus are often due to bacterial action. The adhesions are more or less freely supplied with blood vessels which thus provide an additional source of nourishment for the tumours themselves. In some cases this accessory blood supply continues to increase in volume as the natural supply diminishes and may come in time to be the only source of nourishment available for the tumours. This happens particularly in pedunculated growths. Owing chiefly to the persistent uterine contractions, the pedicle of some of these growths becomes progressively attenuated and may separate altogether from the uterus. Fibroids, which have thus become free, are called *parasitic* upon the bowel, other viscus or structure. The vessels running to them through the adhesions tend to keep degenerative and necrotic changes within them in check, but are prone to torsions, rupture and hæmorrhage from the sudden displacements to which these mobile tumours are liable. A short account of some of these adhesions taken separately will serve to make clearer these relationships and their consequences.

1. *The omentum.* Lying like a protective apron in front of the abdominal organs the great omentum comes in contact with the growing uterine tumours, whenever they rise above the pelvic brim and sometimes even earlier. Adhesions follow, particularly when the tubes or ovaries are the seats of active inflammation. It is naturally the upper parts of the tumours (vide Fig. 12) which acquire these adhesions, the very parts which, being furthest away from the ordinary source of blood supply through the pedicle, are most likely to undergo degenerative changes. But with the advent of these adhesions fresh blood is brought to the tumours, which serves not only to check degenerations, but also to favour growth. Microscopic examination

of the upper part of such tumours often discloses a considerable rind of young and growing cells enclosing degenerated and dead tumour substance deeper in. The adherent part of the omentum usually shows an interesting adaptation to its new nutritive function, in so far as it loses its fat, becomes thinned, fenestrated and breaks away from the tumour except at the places where the blood vessels enter it, so that all its available blood supply becomes concentrated for the better nutrition of the growth. During this adaptation, considerable obstruction to the lymphatic and venous returns may take place, particularly to the former, causing the formation of vesicles and cysts of varying size and number.

2. *The intestine.* Adhesions may unite the fibroid to any part of the bowel, the rectum, colon or small intestine. Adhesions to the rectum are not uncommon. They may help to imprison the growths within the pelvis, but even then rarely give rise to rectal trouble, unless aided by other adhesions, the result of antecedent or coincident pelvic peritonitis. Thus ovarian or tubal inflammations or abscesses or general pelvic inflammation or abscess, may cause such dense and extensive adhesions between the uterus and the general pelvic structures, that both vascular and rectal disturbances follow. Constipation and even intestinal obstruction may arise. Hæmorrhoids may appear and painful defæcation be complained of. But rectal mischiefs generally are more frequently met with in fibroids of the cervix than in those of the body. Adhesions to other parts of the intestine, such as the colon, cæcum, vermiform appendix or small intestine, form most readily after the tumours rise into the abdomen. They are greatly favoured by fixation of the viscus resulting from a previous oöphoritis or salpingitis. When thin and leaf-like they do not interfere with peristalsis. On the other hand when dense, close and at all extensive, constipation, partial or complete intestinal obstruction, may acutely or slowly supervene. Or the adherent intestinal wall may become necrosed and ulcerated, allowing of the escape of some of the intestinal contents into the substance of the tumour. Pus formation, necrosis and gangrene may follow. If an abscess be formed, it may discharge its contents into the bowel without much harm for a while, but it may suddenly become a source of danger. When the vermiform appendix is involved an acute appendicitis may be set up and require immediate operation. It does not complicate the case to remove the fibroid tumours at the same time. Whereas it is better not to interfere with an adherent appendix, in the absence of signs of acute inflammation, when it is met with in the course of a hysterectomy, on account of the added risk of infection, which this procedure entails.

3. *The bladder.* Troubles of micturition are not infrequent. Frequency is most often complained of, but there may be pain or discomfort from partial or complete retention and occasionally from

loss of control. Some displacement of the bladder, mostly upwards, usually follows adhesions (which may be very vascular), owing to the fibroid dragging it upwards in its growth. Cystitis is of rare occurrence.

4. *The tubes and ovaries.* These organs are frequently diseased in fibroid uteri. Many attempts have been made to form an accurate estimate of this frequency and though the evidence available is imperfect, it may be tentatively placed at about 10 to 12 per cent. at least of cases coming to operation. In the experience of some surgeons it is much higher. The lesions are inflammatory in origin except in a few cases, where they may be ascribed to the mechanical effects of the tumours. The tubal are more frequent than the ovarian lesions. Hydrosalpinx is the commonest of them, inasmuch as it may follow upon even a minor degree of inflammation, sufficient merely to seal the fimbriated end of the tube. It accounts for nearly a fifth of the tubal lesions, but pyosalpinx or at any rate active salpingitis, in the form of simple, œdematous, indurative or suppurative states, runs it close. Hæmatosalpinx is mostly an occasional incident of hydrosalpinx. A tubo-ovarian abcess forms about 2 per cent. of these lesions. Tubal tuberculosis, fibrous inflammation, and tubo-ovarian cysts are less, and a tubal pregnancy still less frequent. The adhesions resulting from these tubal lesions are dense and troublesome according to the degree and extent of the salpingitis. Among the ovarian lesions a cystic condition is the commonest; not the multilocular cystoma, for it is rare, but a Graafian follicle or corpus luteum cyst or some other form of simple cyst. It constitutes about one-third of all the ovarian lesions. Papillary and also dermoid cysts, the latter particularly, are of occasional occurrence. So is malignant disease, though less often than a dermoid cyst. Fibromata, interstitial oöphoritis and parovarian cysts are among the rarer lesions. Hypertrophy of the ovarian follicles and endarteritis are occasionally found. These tubal and ovarian diseases are in many instances antecedent to the growth of the uterine tumours and their simultaneous incidence is purely accidental. Blood vessels of considerable size, often tortuous and long, may pass between the tubes or ovaries and the tumours. Serious hæmorrhage may follow their rupture, a not unlikely event on account of the free mobility of many of these tumours.

It is not necessary to give more than a very brief account of the other complications of subserous fibroids. The round ligaments may be stretched or hypertrophied; the utero-ovarian ligaments cystic, hypertrophied or show tumour growth. The broad ligaments may show dilated vessels, be œdematously thickened or the seat of an abscess, a hæmatoma or a fibroid tumour. A varicose condition of the pelvic veins or thrombosis of the veins and œdema of the legs are occasionally seen. The ureters are most likely to be involved by

growths which invade the broad ligaments, but pressure effects may arise in other fibroids also and produce dilated ureters and hydronephrosis. This occurs with sufficient frequency to necessitate a careful examination of the urine prior to every hysterectomy. Ascites is a rare complication and when it does occur, is almost always due to some condition (*e.g.*, cardiac disease) entirely independent of the fibroid, though, in a very few cases, it may be ascribed to a torsion of the pedicle or other obstruction to the circulation caused by the fibroid.

Torsion of fibroids may arise at the cervix uteri when a fundal tumour grows upwards into the abdomen, lengthening and narrowing the cervix, so that a torsion of the fibroid uterine body upon the cervix is made easy, or it may occur in the pedicle of a subserous fibroid, the tumour itself in this case twisting upon the body of the uterus. The latter condition is more common than the former and minor degrees of it are in all probability fairly frequent.

The submucous variety. This variety, like the others, may be small or large, single or numerous. It alters the *shape* of the uterus less than the others. It is important to remember that it may cause the uterus to assume the shape, characteristic of pregnancy, particularly in its early months. Its rapidity of growth varies. When it ceases to be encapsulated by losing its covering of uterine muscle upon the side projecting towards the uterine cavity, its growth becomes slower but its protrusion towards the cavity becomes more marked. Its base of attachment may remain broad or become gradually pedunculated. In the latter case it may assume the shape of a polypus projecting into the uterine cavity (vide Fig. 13). When large it may be forced downwards, by uterine contractions, through the cervix into the vagina, where it may acquire fresh adhesions or become strangulated by the cervix and slough away (vide Fig. 14). Partial or total inversion of the uterus may attend its attempts at expulsion (vide Fig. 15). The necrosis is the result of the diminished blood supply and the sloughing of an invasion by germs. Owing to the fact that germs are rare within the uterine cavity, but common within the vagina, sloughing occurs, rarely in intrauterine compared with intravaginal growths, whilst necrotic changes occur not infrequently in both situations (vide Fig. 16). Intravaginal growths often assume a globular shape, a grey, green, red, brown, black or mottled colour, a rough surface (from erosion and deposit of fibrin) and either a tough, stringy or friable consistence. Their microscopic appearances vary with their duration, and the amount of inflammatory reaction which has taken place. In the main they consist of necrosed fibroid tissue showing bacteria particularly in their superficial parts and occluding some of the veins which are often thrombosed. In the more acute cases, fibrin on the surface, polymorphonuclear and other leucocytes invading the substance may be seen. In the

chronic cases, a definite amount of granulation tissue may be present in the deeper parts. Ulceration and sloughing of fibroids give rise to hæmorrhagic and offensive discharges. The loss of blood is occasionally so copious and sudden as to raise suspicions of abortion or of cancer. Actual pain, dysmenorrhœa, fever and indeed all acute symptoms are uncommon. It is more a condition of general ill-health, of semi-invalidism; an anæmic condition due to the repeated losses of blood, malaise and emaciation, caused by septic absorption along with cardiac dilatation, hæmic murmurs, dropsy and the other signs of the marasmic state.

Causation of fibroids. Nothing is definitely known of their cause. Several factors appear to have a relationship, more or less close, to their appearance, but whether it is merely fortuitous or causative cannot be determined. The following may be briefly noticed: (1) *Age.* Fibroids are practically confined to the period of adult sexual life, very rarely appearing before puberty and not often after the menopause. (2) *Heredity.* It has been held by some writers that the disease shows a tendency to run in families, but the weight of evidence does not support this contention. (3) *Race.* Fibroids are more common in black than in white people. (4) *Sterility.* The relationship between fibroids and sterility is a close one. They are undoubtedly a cause of sterility and it has been suggested that they may also be one of its results, on the ingenious hypothesis that, if the adult uterus is not kept relatively busy by repeated pregnancies, it may turn its activities to the formation of fibroids. (5) *Cell rests.* From the hypothetical standpoint, the origin of myomata, as of other tumours, from cell rests is, in a sense, satisfactory. But though a diligent search has been made by many writers in an immense number of uteri, no histological evidence of their existence has been forthcoming. Further, if the existence of cell rests be granted, is not a special irritant still required to rouse them into active growth? (6) *Irritation.* Like many other growths an irritation theory has been brought forward, but remains unproven. (7) *The vessels.* The whorled arrangement of the muscle cells in myomata and their general relationship to the blood vessels are suggestive of a genetic connection between them and much work has been done in this field ever since Klebs first enumerated the doctrine, that the growths take their origin in the muscular walls of the vessels. Young tumours are most suitable for investigation, but the histological methods so far available have not led to any general conclusion, for, though some of the workers have inclined to support the theory, others are against it. Most writers still adhere to the opinion that the tumours originate in the muscle of the uterine wall. (8) *Blood extravasations.* It has been suggested that small accidental blood extravasations may provide the stimulus, which starts the aberrant growth of muscle cells, but no evidence has been produced in its

support. (9) *Bacteria.* In a search into the possible causes of any disease, bacteria have always to be considered. But, though some speculations have been made, no proof has ever been forthcoming, that they have anything to do with the causation of myomata.

Growth of Fibroids. The rate of growth of fibroids is usually slow and progressive until the menopause, which they may postpone to some extent. Occasionally it is rapid, so that the tumours reach a large size in a few months. Sometimes they remain nearly stationary for months or even years. True growth is rare after the menopause, though increase in size is not uncommon. This is mostly due to degeneration and not to growth, except in sarcomatous reversion. This conclusion may be safely made when the increase in size is rapid and sudden. These degenerative and necrotic changes are of great importance both in the systematic study of the tumours, and in their practical treatment.

Influence upon Fecundity. The statistics, bearing upon the sterility of women who suffer from fibroids, show a high percentage of both complete and partial barrenness. In 50 per cent., approximately, pregnancy has never occurred, and among the remainder, the majority have borne only one child. Even in those with more than one child, the numbers of the children are fewer than those of mothers free from fibroids. It is, indeed, rare for the victim of fibroids to have a large family. These statistics no doubt over state the case, as in many of the patients other causes of sterility, such as diseased tubes or ovaries, are at work as well.

Influence upon Pregnancy and Parturition. Though fibroids prevent conception sufficiently often to be regarded as an important cause of sterility, they do not always do so. Conception frequently occurs and the subsequent pregnancy and parturition may run their normal course despite the presence of fibroids. When the fibroids are of moderate size there is every reason to hope that the course, both of the pregnancy and of parturition, will be favourable; and even if they be large, interference should not be resorted to, unless symptoms appear which make a favourable termination improbable.

It is sometimes said that pregnancy favours the growth of fibroids, and thus helps them to cause future trouble. But, though they may increase considerably in size with the advent of pregnancy and diminish in an equal way during the puerperium, it is doubtful if this is owing to a true growth. More likely it is due to the establishment and disappearance of an œdematous state. Fibroids also influence pregnancy in other ways. Both post partum hæmorrhage and septic infection occur more frequently when they are present than when they are absent. Moreover, congestive, degenerative and necrotic changes occur with greater frequency, probably from the greater mobility of the involuting uterus and the greater liability of the tumours to torsions.

Retrogressive Changes within the Fibroids. It is convenient to arrange them in two divisions according as they are attended by a diminution or an enlargement of the tumour mass. They are, however, not mutually exclusive, but overlap one another considerably.

A Diminution in Size. 1. *Atrophy.* The tumours may undergo atrophy at any time, and are particularly liable to do so after the menopause. But, though they may become greatly diminished in size, their complete disappearance is very improbable. The belief that they frequently disappeared spontaneously after the menopause was generally held until a few years ago. It led to the general adoption of the expectant method of treatment for all cases, and has thereby condemned many women to a life of semi-invalidism for years, only to face an operation in the end, when they are much less fitted for it. Good results have undoubtedly been obtained from it, and it should still be followed where the fibroids cause little or no trouble. On the other hand, whenever symptoms have become noticeable or at all troublesome, it is better for the patient to have recourse to operative treatment. She is in a fitter state of health for the operation and it will save her from a long period of chronic ill-health. The histological changes accompanying atrophy are arrived at largely from our knowledge of atrophy in general. It may be simple or degenerative, the fatty form being common. It affects the muscular more than the fibrous connective tissue. The latter may, indeed, show some compensatory hyperplasia, in the earlier stages at any rate, and by its subsequent contraction aid in the diminution of size of the tumour. A failing blood supply is, in all probability, the cause of the atrophy, but its manner of occurrence, whether by a vascular sclerosis, or compression by active uterine contractions or by other means, is largely a matter of conjecture.

2. *Fatty Degeneration.* Areas of fatty degeneration of sufficient size and degree to be detected by the unaided eye are not common. They form soft, yellow, irregularly shaped areas in one or more parts of the tumour, and are usually accompanied by other forms of degeneration. Occasionally the whole tumour shows this advanced fatty change. A more diffuse and less advanced degree of this degeneration is met with much more frequently. It usually requires the help of the microscope, and often of the special stains for fat, for its demonstration. In its early stages it takes the form of minute droplets of fat within the protoplasm of the muscle fibres.

3. *Calcification.* A slight degree of calcification, recognised by the grittiness experienced when the tumour is sectioned or by the intense blue colour it strikes with hæmatein when examined under the microscope, is not infrequent in many slowly growing tumours. More advanced stages are also met with in which the change is largely limited to the peripheral parts of the growth, constituting

a sort of shell, or distributed in regular patches or diffusely like a network throughout its substance (vide Fig. 17). It may be complete, converting the tumour into a rough mass as hard as a stone, the so-called "womb-stone" (vide Fig. 18). It must be remembered that this is not a primary change. It never arises except as a sequel to some other degenerative (*e.g. fatty*) or necrotic process. It is met with mostly in elderly patients, about 50 being the most likely age. It may appear in any fibroid, but is oftenest found in the peripheral parts of subserous tumours.

4. *Erosion, Disintegration and Sloughing.* Subserous fibroids, which have established a connection with the lumen of the bowel, are liable to lose some part of their substance by suppuration, disintegration and sloughing, but it is chiefly in submucous growths that these processes occur, either whilst still retained within the uterus (vide Fig. 16), or after extrusion through the cervix (vide Fig. 14), or outside the vulva. Large parts, or even the whole (though this is uncommon) of a tumour may be got rid of in this way, with both local and general relief to the patient, relief which is unfortunately temporary only in most cases, but one which may be experienced several times by a recurrence of the disintegrating processes. The subsidence of the acute stages may be followed by much fibroid induration, resulting in marked diminution in size. It is to be remembered, however, that these processes are largely hastened by the activity of pyogenetic, disintegrating and putrefying bacteria, and consequently attended by a varying degree of blood poisoning. They are responsible for the hæmorrhagic, purulent and other offensive vaginal discharges and for the fever, anæmia, malaise, emaciation, and general ill-health which will sooner or later undermine the constitution of these patients.

B. Increase in size. The enlargement in size, which accompanies the degenerative changes, is variable both in time and degree. It may be slow and progressive, but is more likely to be iregular. It is not infrequently sudden, particularly at the menopause, so much so that a sure diagnosis of uterine fibroid may be made when a pelvic tumour undergoes a rapid and painless enlargement at this period.

1. *Œdema.* An œdematous change may appear in any fibroid, but it is probably most common in the large, solitary, interstitial variety. It varies both in extent and rapidity of onset. While it may affect the whole of a solitary growth, though rarely of multiple tumours, it is often of sufficient extent to cause a noticeable increase in their size. There is reason to believe that it comes on fairly rapidly, sometimes suddenly, in many cases It is difficult to trace its method of production. At the best it is based upon speculative considerations referable to the failing circulation resulting from a sclerosis of the arteries, to torsions of the tumours, to irregular

uterine contractions, to an enfeebled cardiac action, and the like. Under the microscope the lymph spaces are distended and the individual muscular fibres separated from one another and rendered more distinct. Some of the spaces undergo considerable distension to form sinus-like and other irregular cavities or cysts (vide Figs. 19, 20). The distension may be great, constituting what is known as a "lymphangiectatic cyst," often of large size (vide Fig. 20). There may be only one or many such cysts (vide Figs. 24 and 25). Where they are very numerous and of varying size, the tumour may present a striking resemblance to a multilocular ovarian cyst, both in its clinical signs and in its general macroscopic appearances. The lining wall is usually smooth, showing a definite endothelial cellular layer, like that of a lymph cavity, but their lymphangiectatic nature is not negatived by its absence. Their increase in size is favoured by degenerative changes in the surrounding tissues. These changes advance more quickly in the muscular strands than in the older fibro-muscular bands, particularly around the blood vessels. The greater persistence of the latter may confer a sculptured appearance upon the walls of the cavities, not unlike the columnæ carneæ of the cardiac ventricles. The fluid itself is clear and colourless, or slightly opaque and pale yellow. Its composition is much the same as that of the lymph. It does not coagulate spontaneously within the body, though it occasionally does, after removal of the tumour and on exposure to the air. Immersion in formalin has the same effect (vide Fig. 21).

The explanation of the formation of these lymphangiectatic cysts is unsatisfactory. It seems to be clear that they are primarily due to retarded lymphatic outflow, but it is difficult to understand how the mere force of the lymph flow can lead to the formation of cysts of such large size. The pressure of the fluid within the cysts must surely soon rise above the pressure of the lymph in the various lymphatic vessels and spaces which drain into the cyst! An active secretion by the endothelial cells lining the cyst wall has been put forward, accordingly, as the probable explanation of these extreme cystic developments, whether met with in fibroids or in other situations such as the large, tense, fluid swellings in the submaxillary and neighbouring regions known as *cystic hygromata*, which are composed of a collection of large cysts, separated from one another by fibroid walls, lined by endothelium and containing clear fluid, like lymph. But, though there is some evidence in favour of an active secretion, it has not been proved to occur and the mode of formation of these large cysts, in the uterus as elsewhere, remains obscure.

Not the least interesting point in connection with œdema, is the possible influence upon growth exerted by the prolonged bathing of the tumour cells in an excess of nutritive fluid, and by their comparative freedom from mutual pressure. It is true that the fluid, being some-

what stale, has a diminished nutritive value, and contains a greater amount of effete products than does the ordinary lymph, and that active growth is not a characteristic of a dropsical condition of tissues generally. Nevertheless it may stimulate growth in a fibroid, whose vegetative activities are naturally more active than those of the adult tissues, but whether it can ever heighten them to the standard usually recognised as sarcomatous, may well be doubted (vide Figs. 66 and 67). If it could start in this way, mitotic figures ought to be commoner in the cells of an œdematous part than elsewhere in fibroids, and this has certainly not been the writer's own experience, except in cases where other important influences have been present at the same time.

2. *Myxomatous Degeneration.* Fibroids often show, in many parts, a structure characteristic of a myxomatous tissue, viz. branched cells in a jelly-like or sparsely fibrous matrix. It is a condition which is seen in other tumours, and in many inflammatory growths whose return circulation is interfered with. The mucous polypus of the nose is an illustrative example. All the indications go to show that the myxomatous appearance of fibroids is really explainable by a similar œdematous change and not by a true myxomatous degeneration.

3. *Hyaline Degeneration.* The conversion of portions of a fibroid into a smooth, glassy homogeneous substance is spoken of as a hyaline change, one of the most characteristic alterations met with in these tumours. It is common in minor degrees, recognisable only with the aid of the microscope, being present in most if not in all fibroids. But it is not nearly so common in major degrees, sufficiently pronounced to be detected readily by the unaided eye, its frequency being about 5 per cent. It occurs in patches or large masses of varying shape, though often rounded, having a white, grey or pale yellow colour, sometimes tinged with shades of pink, red, brown or blue (vide Figs. 21, 24, 25 and 26). They have a firm consistence, and cut like cartilage. They are best marked in large tumours, particularly towards their centre, and also in the distal peripheral parts of subserous growths. Under the microscope they exhibit a homogeneous or slightly fibrous and structureless appearance (vide Figs. 22 and 23). Selective stains such as Van Gieson's, which pick out muscle from fibrous tissue, are preferable to non-selective stains such as eosin for its study. The former stains it red when it is young, and yellow when it is old, whilst the latter always colours it red. It is difficult to trace the evolution of the change. In its early stages it appears to affect only the interstitial fibrous tissue, and not the muscle fibres. The latter can often be shown to contain fat globules. The early changes thus suggest a coincident fatty degeneration of the muscle, and a hyaline transformation of the connective tissue fibres. As the process advances, it is difficult

even with the help of the best selective stains to say whether or not the hyaline transformation spreads to the muscle and several writers assert that it does, but the appearances seem to the present writer to favour the opinion that the muscle only undergoes a degenerative atrophy. Its final disappearance is helped by the pressure of the increasing hyaline substance, in the formation of which it plays therefore only a passive part (vide Fig. 23). It is noteworthy that the hyaline transformation usually affects the parts of the tumours most remote from a free blood supply, though it is occasionally well marked in the walls of the blood vessels themselves. A similar hyaline change is common in the fibrous stromas of other tumours, in enlarged lymphatic glands, in the renal glomeruli in chronic nephritis, in scar tissue generally and the like. It affects only abnormal fibrous tissues, not muscle, and is closely related to a deficient blood supply. It is more of the nature of a necrosis than of a degeneration, and its appearanecs are probably the result as much of a physical as of a chemical change. It is, therefore, probable that the so-called "hyaline degeneration" of fibroids is secondary to some degenerative process, primarily affecting the muscle as a fatty or allied change, and that the hyaline swelling affects only the physical or otherwise altered interstitial connective tissue, and never the muscle. It is certainly the case that other degenerative changes both accompany and follow upon it. Œdema is frequent, both as a forerunner and a contemporary. Fatty degeneration is sometimes prominent. True amyloid or waxy degeneration has been observed. Soft, or even liquid, foci appear within the hyaline mass, giving rise to pseudocysts (vide Figs. 21 and 24). They have been ascribed, on somewhat insufficient evidence, to a form of mucinoid softening, sometimes wrongly termed colloid. Hæmorrhage may arise into the cavity of a true or false cyst. Occasionally it is very free and forms a hæmatoma filling a large cyst and at times constituting the main bulk of the tumour.

4. *Necrosis and Softening.* Necrotic and disintegrating foci of varying size and number occur with moderate frequency within fibroid tumours of all varieties, particularly in large ones. They vary in colour and consistence, and lead to the formation of irregular cavities containing pigmented debris and fiuid (vide Figs. 26, 27, 28, and 29). They may resemble an abscess macroscopically, but when examined under the microscope, the characteristic signs of inflammation are absent. There are neither polymorphonuclear leucocytes nor bacteria to be seen, except occasionally, and in such small numbers as to indicate a secondary and accidental invasion. Strands of fibrin are sometimes present, but they can be traced to hæmorrhages or thromboses. Autolytic and not bacterial ferments must be the cause of this softening. The degenerative and necrotic

processes, which precede the softening, bring about the liberation of these ferments. In the walls of cavities and in the surrounding tumour substance various retrogressive changes are visible, viz., œdema, hyaline, a fatty degenerative, coagulative, and colliquitive necrosis. Blood may be poured out into the cavities and infiltrate the surrounding walls. Torsions and other influences which lessen the blood supply and disturb the circulation may lead to necrosis within fibroids similar in character to the anæmic, and occasionally to the hæmorrhagic, infarcts of the organs supplied by the so-called "end arteries." The uterine arteries are not "end arteries," but fibroids are much less vascular than the uterine muscle, and much more liable to circulatory disturbances, and patches of necrosis, suggestive of this method of causation, are not infrequent. Both macroscopically and microscopically these tumours, particularly the submucous forms, may present all the features of a bland hæmorrhagic infarct (vide Figs. 29, 30, 32, 33, and 34). Some of the cases described as showing angiomatous degeneration of a fibroid, may possibly be of this nature. Moreover in many fibroids there are varying sized areas of a deep red colour, which show similarly distended vessels, containing thrombi or blood separated by degenerations or necroses. These areas are often spoken of as being due to the presence of thrombosed and distended veins, but they may really be small infarcts.

5. *Suppuration and Gangrene.* Suppuration may occur within either a perfectly healthy or a degenerating fibroid after invasion by pyogenetic germs. These germs may enter from the vagina, the intestine, the Fallopian tubes or ovaries, the bladder, or by the blood stream, and the abscess may discharge itself by any of these paths, or into the peritoneal cavity. Gangrene is a common sequel.

6. *Angiomatous Degeneration.* Though fibroids as a class are poorly supplied with blood vessels, it occasionally happens that blood vessels become so numerous as to impart an angiomatous character to growth. This change is regarded as degenerative in nature, since it is only found in tumours showing other retrogressive features.

7. *Red Necrosis.* When a fibroid exhibits a red colour of its necrosed parts, it is said to have undergone red necrosis (vide Fig. 35). This retrogressive change has long been a subject of interest and discussion. The shade of colour varies from a pale to a dark red hue. While it often involves the whole substance of the tumour, more or less equally, it may appear in patches only, and is particularly likely to begin and be most marked at the periphery. Its consistence is firm, and it is less elastic than the normal fibroid tissue. Under the microscope it exhibits the architectural structure of a fibroid. The fibro-muscular bundles and the blood vessels apparently preserve their normal relationships and grosser structure, except that they are dead and do not stain with the ordinary dyes.

Fat globules and pigment granules may be abundant. Hæmorrhage may be present, but not in sufficient amount to account for the colour, which appears to be due mainly to a solution of hæmoglobin. Thrombosis within both arteries and veins may be seen, especially at the periphery, but it is not clear whether it is of primary or secondary occurrence. Poisons allied to the amines have been found, and they, along with a tendency to bacterial infection, may account for toxæmia or sapremia, which may become pronounced in these cases. Though the causation of this peculiar form of necrosis has been much discussed, it has not been successfully explained. It is probably produced more rapidly than other forms of necrosis, since pain is frequently a prominent symptom. It seems also to be related in some way to pregnancy, for it occurs oftener during pregnancy and during the puerperium than at other times. This relation is not essential, however, for it is met with in women who have never been pregnant. Bacteria have been sought for most diligently of late years, by many workers. Staphylococci and bacilli have been found in a few cases, but only in such numbers and surroundings as to suggest their secondary and accidental advent. In most cases, on the other hand, no bacteria have been found, and the question remains for future settlement. No parallel condition to red necrosis occurs elsewhere, and the rapid hæmolysis which gives the special character to it is still unexplainable. A rapid bacterial invasion might produce the red colour either by hæmolysis or by special pigment formation, and as rapidly disappear as a result of bacteriolysis. Investigation, if undertaken early enough, may help to solve this question.

8. *Sarcomatous Degeneration.* The consideration of this obscure and interesting form comes more conveniently under the heading of malignant tumours.

II.—THE ADENOMYOMA.

The pathological features of the adenomyoma differ from those of the myoma in two main characteristics. It is a diffuse and not a circumscribed growth, and it contains islands of endometrial tissue throughout its substance. The former character prevents it from being easily shelled out. It is devoid of the loose cellular bed which bounds the myoma, blending at its margins insensibly with the uterine muscle (vide Fig. 36). This character becomes more obvious when adenomyomatous and discrete myomatous growths co-exist in the same case (vide Fig. 37). The adenomyoma may occupy the anterior, posterior, or lateral walls of the uterus and always reaches the endometrium internally. It is generally of moderate size. The second characteristic, viz., the presence of islands of endometrial tissue within the muscle, presents the appearance of spaces or chinks within the substance of the growth, impart-

ing to it a sponge-like appearance when the chinks are close together. A muscular variety with few and a glandular variety with many tubules occur. Under the microscope these spaces, often branching in a comb-like fashion, are seen to be lined by columnar epithelium, possessing glands and usually also a certain amount of cellular tissue, all exactly like that of the endometrium. They appear to be minute uterine cavities, the tubules showing no signs of active growth (vide Figs. 38 and 39). In all other respects the minute structure of the tumour is the same as that of the myoma, and if these interstitial endometrial spaces occurred only in the near neighbourhood of the uterine mucosa, it would appear natural to regard them as merely prolongations of it, but they may occur everywhere throughout the tumour, even so far as the peritoneal coat. Notwithstanding this, writers are now mostly agreed that they take their origin in this way. By means of serial sections even the most distant spaces can be shown to be in direct continuity with prolongations from the uterine cavity, and in instances where this can no longer be demonstrated, it is easy to understand how they may have got cut off in the course of the growth of the muscle bundles of the tumour. Even in the normal uterus the mucosa may dip in for some distance into the muscular coat and the adenomyoma may, unlike the myoma, always begin close to the mucosa, when it would be easy for portions of the latter to become entangled within the growing muscular fibres. In the prolongations closest to the mucosa, the tubes run perpendicularly to the uterine cavity, but they soon get pushed out of position by the growing muscle bundles, whose course they follow as the way of least resistance. They run parallel with them for a time, but owing to the irregularity of the course of the muscle bundles, they come to get nipped off and pushed further out until they may be found in any part of the substance of the tumour. Some of these isolated spaces may become distended into cysts. Fig. 39 shows the beginning of this process. Lymphangiectatic and telangiectatic cysts also occur occasionally in these growths; hence the names adenomyoma cysticum and adenomyoma telangiectaticum. Whilst this method of origin of these interstitial spaces is gaining adherents among pathologists, Recklinghausen's theory of origin, enunciated some years ago, is still supported by several writers. This distinguished pathologist, noting the resemblance of the tubes within an adenomyoma to the comb-like appearance of the Wolffian body within the broad ligament, suggested that these tumours represented the inclusion within the uterine wall of the upper end of the Wolffian duct, whose muscular coat had undergone overgrowth. He failed to explain why these tumours should be so much more common in the body of the uterus, above the site of entrance of the Wolffian duct into the uterine wall, than in the cervical region below it. But the later evidence obtained by

means of serial sections has done more than such theoretical objections to upset Recklinghausen's theory. Moreover, altered blood and blood pigments have been found within these interstitial spaces, suggesting that they function as miniature uterine cavities and participate in the menstrual congestions and swellings, thus explaining the pain so often experienced by the patients at the menstrual periods. A somewhat parallel condition, as shown by Aschoff, occurs in some subserous myomata, in so far as peritoneal down growths may invade the substance of myomata and take on glandular characters. Increase of the ordinary menstrual discharge is another feature often present in these tumours, and it is explainable on the supposition that many of these spaces are still in communication with the uterine cavity. Though intermenstrual discharge is rare, it occurs more frequently in adenomyomata than in myomata. In still another point do the former differ from the latter in so far as they do not appear to offer any hindrance to conception. Again, while both are essentially benign growths, they (particularly the adenomyoma) are so often accompanied by malignant disease within the uterus, ovary or tubes, that it is difficult to regard the association as entirely accidental in character. Fig. 36 shows the co-existence of an adenomyoma of the uterus and of a sarcoma of the ovary. Cases of cancer arising in the mucosa covering an adenomyomatous tumour are on record, in some of which the benign tubes of the latter seem to run up to and even among the malignant tubes of the former. The juxtaposition is such, that it naturally suggests the transformation of the simple into the malignant adenomatous tubes. Fig. 40 shows a surface cancer growing superficially to an island of simple adenomatous structure within the substance of a diffuse fibroid at some distance from it. In this case no direct continuity could be demonstrated between the two orders of tubes. They appear to have originated independently of one another and all the evidence seems to the writer to point in the same direction, even when a topographical continuity can be shown to exist. There is no reason to believe that the simple growth ever originates the malignant one, but there may be some unknown underlying factor connected with both the myoma and the adenomyoma which favours the subsequent development of a cancer. It is difficult to account for the frequency of the co-existence of fibroids and of cancer, which will be referred to again, except upon some such hypothesis. Although a begnign tumour, the adenomyoma often causes more active symptoms and becomes more dangerous to the general health than the myoma.

III.—Other Benign Tumours.

The practical importance of the other benign growths of the uterine body is slight. Myxomas, fibromas, chondromas, osteomas, and adenomas have been described, but they seem mostly to have

been altered and degenerated myomas. The lipoma occurs in the cervix as a polypus, not in the corpus uteri, and the dermoid cyst occasionally occurs in the form of polypoid outgrowths. The placental mole is in most cases (about 70 per cent.) a benign uterine tumour, but its consideration is deferred until the chorioepithelioma is described.

Short Synopsis of Fibroids.

1. The vast majority is entirely innocent.
2. A large proportion of them impairs the general health.
3. All are potentially dangerous, either by (1) retrogressive changes which are liable to appear as soon as even a moderate size is attained; (2) the acquisition of malignant characters, which occurs in 2 per cent. approximately; or by (3) coincident inflammatory states of the uterine adnexa.
4. Atrophy and diminution in size may occur at the menopause, but spontaneous disappearance is doubtful.
5. Surgical removal is the only certain means of cure, and should be adopted whenever symptoms become marked. The mortality is less than 2 per cent.

(To be continued.)

DESCRIPTION OF PLATES.

All the illustrations are taken from specimens in the Pathological Museum of the University of Birmingham. They are photographs and photomicrographs taken by the writer with the assistance of certain members of his staff, particularly Drs. Wilson and Hewetson and Mr. J. F. Brailsford. They are all new, not having been previously published, except in the case of Figs. 95, 96, 108, 109, 112 and 122. A short clinical history has been added, wherever possible, to the anatomical and histological features so as to increase interest in the cases and relieve the paper itself from many details.

GENERAL CHARACTERS OF FIBROIDS.

Fig. 1. The uterus is greatly altered in size and shape by many nodular fibroids. About one-quarter natural size.

Fig. 2. Section of body of uterus (cervix not present) and fibroids about half natural size. The whorled and fasciculated appearance is well seen. The endometrium is thickened, being 2 to 3 mm. in thickness. From a single woman æt. 37 who complained of severe bearing down pains of 3½ years' duration in the lower abdomen and back, increasing dysmenorrhœa, no menorrhagia.

Fig. 3. Section of uterus with interstitial fibroid less than half natural size, shewing the loose bed of the tumour with many large vessels, the substance being devoid of visible vessels except at an opaque area towards the centre, in which there are two. This area shews hyaline degeneration. From a single woman æt. 31,

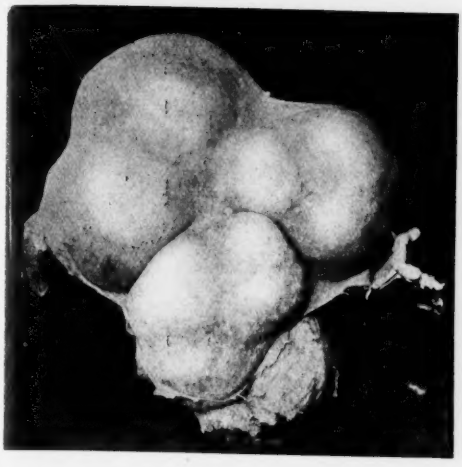
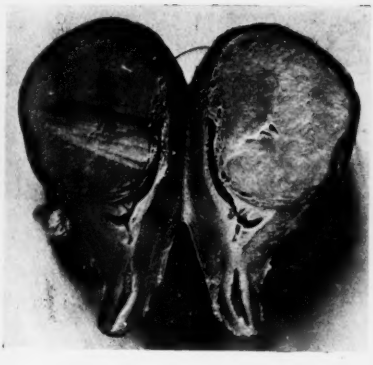


Fig. 1.

Fig. 2.



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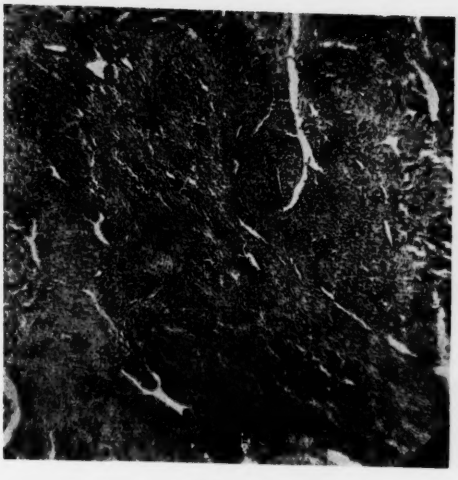

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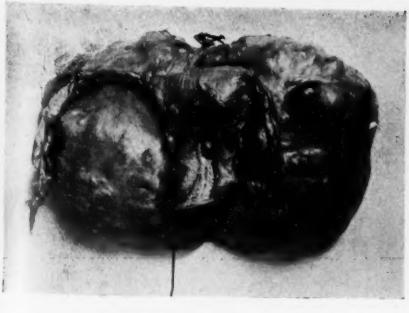

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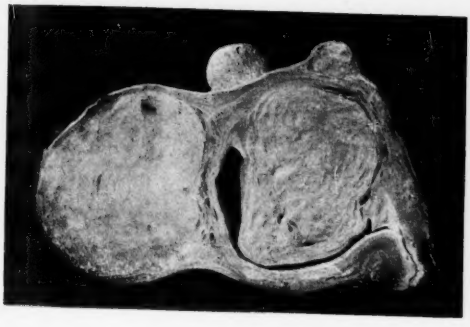

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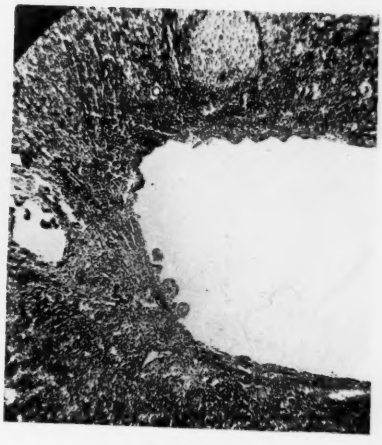


Fig. 10.

Fig. 11.

Fig. 12.

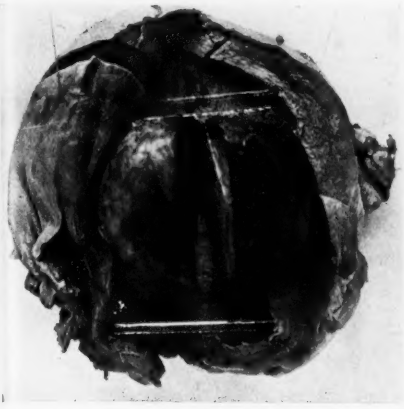


Fig. 13.

Fig. 14.

Fig. 15.

Fig. 16.

Fig. 17.

Fig. 18.

of an irregular menstrual history till 29, who had menorrhagia for 2 years, increasing during last 3 or 4 months, as well as much sacral and lower abdominal pain.

Fig. 4. Section of a typical young fibroid x 25 shewing irregular interlacing of muscular bundles, small amount of intervening fibrous tissue, many capillary blood vessels and lymphatics.

Fig. 5. Uterus only slightly enlarged with large fibroid growing from the posterior surface of its body, also several small ones and two small inflammatory polypi, less than half natural size. The fibroid has been sectioned and the halves spread out.

Fig. 6. Uterus with many fibroids shewing uniform enlargement similar to that of pregnancy about one-quarter natural size. From a widow æt. 42, who had had two pregnancies, one ending at full term and the other in a 3 months' abortion. She was anæmic and wasted and had suffered from pain in back, leucorrhœa and menorrhagia for 2 years.

Fig. 7. Uterus of unaltered size and cavity with interstitial fibroid (about size of goose's egg) becoming subperitoneal at its apex, having for its base the whole posterior wall of uterus. The endometrium is thickened (about 4 mm.). From woman æt. 38 who had had 1 child only, 9 years prior to the hysterectomy. She complained of bearing down pains, worse before the menstrual periods, of 3 years duration and pain on defæcation of 1 year's duration. No menorrhagia.

Fig. 8. Uterus with several fibroids causing distortion of uterine cavity and retroflexion of cervix, about half natural size. From a single woman æt. 47, who was anæmic and wasted. She had suffered from much menorrhagia, offensive leucorrhœa and pains over lower abdomen and sacrum for last 4 months.

Fig. 9. Vertical antero-posterior section of enlarged uterus with many fibroids shewing two sharp bends in uterine cavity, which is 11 cm. long; less than half natural size. From a single woman æt. 33, who had srffered from much loss of blood.

Fig. 10. Section of part of distorted uterine cavity showing resulting polypoid formation ×20. There is localised œdema of the fibroid above and a patch of hyaline degeneration to the left of the cavity (the reader's right).

Fig. 11. Section of endometrium ×30 in a case of distorted uterine cavity, showing dragging of mucosa and displacement of glands.

Fig. 12. Omental adhesions. Anterior view of a large lobulated mass consisting of several tumours, which have grown from the posterior wall of the body of the uterus; less than one-quarter natural size. The elongated cervix (into which a glass rod has been inserted) is seen at the upper left angle. The lower part of the mass filled the pelvis, the upper and larger rose into the abdomen. The peritoneal surface showed many large veins. A large mass of the omentum, in which were several lymphatic vessels about the thickness of the little finger, was adherent to the anterior and upper surface of the tumour and to the right tube and broad ligament. From a single woman æt. 34, in whom Dr. Thomas Wilson tried a double öophorectomy 5 years previous to the hysterectomy. For the first 3 years the periods continued regularly each month without any change, but during the last 2 years there has been complete amenhorrhœa. Flushes were severe day and night since the öophorectomy and for the last 6 months the tumour has been again slowly enlarging and a ventral hernia had appeared.

Fig. 13. Submucous fibroid about 1¾ inches in diameter attached by broad base to posterior wall of body of uterus, shewing a tendency to become polypoid. The cervical canal is taken up into the body as occurs at the beginning of labour. The tumour was of a dark plum colour with a smooth surface, except in its upper part where it is irregularly eroded and partly covered with lymph. The lower surface is partially denuded of mucosa and shows an acute inflammatory change extending for a little distance into the substance of the growth; rather less than half natural size.

Fig. 14. Section of uterus containing a large interstitial fibroid. A soft friable mass which caused bleeding and offensive discharge projected through the cervix into the vagina. This was removed by Dr. Purslow and found to consist of fibroid tissue undergoing sarcomatous change; see figs. 51, 52, and 53 for the appearance under the microscope. Dr. Purslow thereupon removed the uterus. The great bulk of the fibroid is benign but sarcomatous-looking characters begin to appear towards the lower part where the growth was gripped by the cervix. Less than one-third natural size.

Fig. 15. Postmortem specimen showing large fibroid attached to body of uterus protruding through the vulva. The prolapsed uterus is partially inverted. The specimen has been bisected and thrown open; about one-quarter natural size.

Fig. 16. Enlarged uterus opened by a T-shaped incision to show a submucous fibroid which is undergoing suppuration and sloughing in its lower part due to pyogenetic and putrefactive germ invasion. The substance of the tumour is œdematous and shows a few large thrombosed veins in its upper part; less than half natural size.

BENIGN DEGENERATIONS IN FIBROIDS.

Fig. 17. Section of 2 fibroids, the larger being of irregular shape and showing a well marked shell and nodules of calcification; about natural size.

Fig. 18. Two fibroids which have undergone complete calcification; about one-third natural size.

Fig. 19. Œdema. Section of fibroid ×25, shewing dilated lymph spaces and œdematous condition of surrounding tissue.

Fig. 20. Large lymphangiectatic cyst within fibroid; less than half natural size.

Fig. 21. Section of a large hourglass-shaped, subserous fibroid about one-quarter natural size, which was attached to the uterus by a slender, chiefly membranous, pedicle. In its upper part is a large irregular pseudo cyst, formed partly by œdema and partly by bland liquefactive necrosis of the tumour substance. The omentum carrying several large vessels was adherent to the upper part of the tumour. Smaller softened and liquefied foci are scattered through the tumour. The fasciculated appearance is largely replaced by granular material; œdema, fatty and hyaline degeneration being abundant. There are also two calcareous nodules in the narrowed isthmus. From a single woman æt. 47, who had known of the existence of a slowly increasing abdominal tumour for 10 years. Two attacks of severe pain 6 years and 2 years ago; menorrhagia during the last few months.

Fig. 22. Section of fibroid ×20, shewing well defined patches of hyaline degeneration, some of them in the walls of blood vessels.

Fig. 23. Section of fibroid ×50, shewing extensive, but incomplete, hyaline degeneration below, passing gradually into an œdematous condition above. The remains of the muscle fibres and their nuclei are still visible in the hyaline part.

Fig. 24. Œdema lymphangiectasis and hyaline degeneration. Section of fibroid less than half natural size shewing extensive degenerative changes. The contents of the spaces are coagulated by formalin. Hyaline and myxomatous changes are abundant, particularly in the dark coloured areas near the spaces.

Fig. 25. Section of a fibroid less than one-third natural size. The smooth lined cavity at the lower end of the tumour contained about 1½ pints of clear yellow fluid. Immediately above and to the right is a similar small cavity. No epithelial lining could be demonstrated in either of them, but they are probably lymphangiectatic. The solid part of the tumour shows œdema and myxomatous change. From a widow æt. 42, who had never been pregnant. Her only complaint was the steady increase of the swelling in her abdomen which she had noticed for fully two years. At the time of the operation the tumour extended to 4 inches above the umbilicus.

Fig. 19.

Fig. 20.

Fig. 21.

Fig. 22.

Fig. 23.

Fig. 24.

Fig. 25.

Fig. 26.

Fig. 27.

Fig. 28.

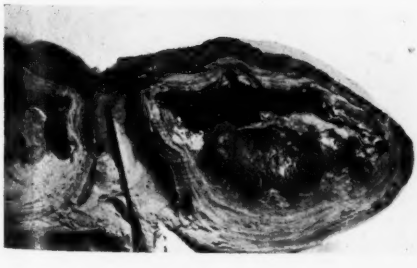


Fig. 29.

Fig. 30.

Fig. 31.

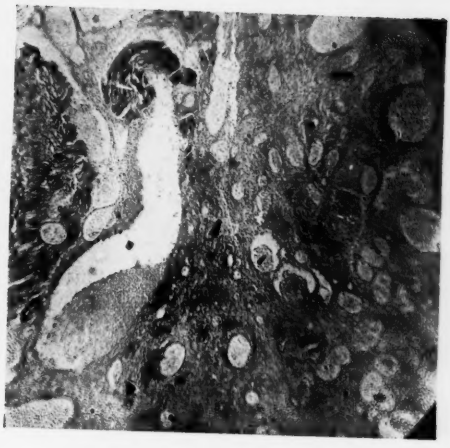


Fig. 32.

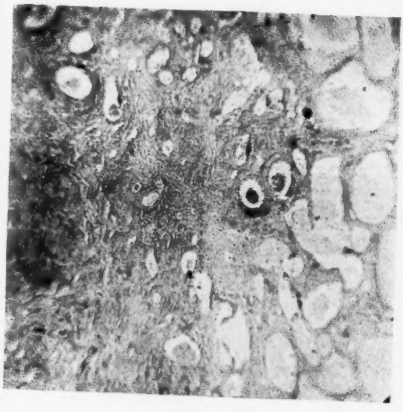


Fig. 33.

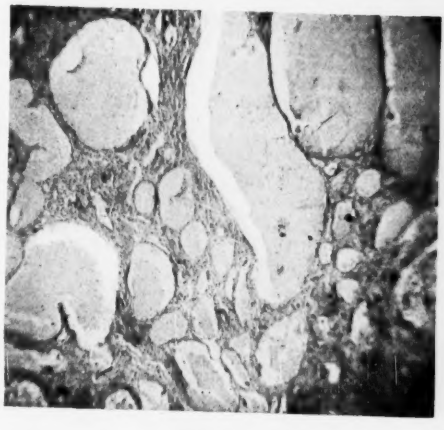


Fig. 34.

Fig. 35.

Fig. 36.

Nao U

Fig. 26. Section of a large fibroid a little over one-quarter natural size shewing a necrotic cyst which contained clear gelatinous fluid, in its upper part, and much œdematous, lymphangiectatic, fatty and hyaline change in the upper solid part of the growth. From a single woman æt. 43, who had menorrhagia for about 1½ years and had noticed a swelling in abdomen for over a year.

Fig. 27. Section of an interstitial fibroid under half natural size, which has almost completely broken down into an irregular cyst with rough sculptured walls lined by a brownish-yellow waxy looking substance. It was filled with dark chocolate coloured thick fluid, and there was a deposit of fibrinous material in many places. The walls under the microscope shewed myomatous tissue much altered by œdematous and hyaline changes. From a woman æt. 52, who had had 3 children, the last 25 years ago. Menstruation regular until 14 months ago, then only two periods in next 8 months, and during last 6 months, red discharges with sharp shooting pains of several days duration have occurred at frequent intervals, the longest lasting about a week; abdomen gradually getting larger, retention of urine a fortnight ago.

Fig. 28. Left half of uterus with several fibroids about one-third natural size. The largest situated in posterior wall, has undergone almost complete necrosis, the wall being in no place more than 11 mm. thick and showing many projections, and tags of tumour remains. The posterior wall of uterus shows many large vessels. From a married nullipara æt. 40, who began to suffer pain and difficulty in micturition 12 months ago, which culminated in retention 3 weeks ago. There had been copious leucorrhœa before and increase of loss during the periods of late.

Fig. 29. Section of an interstitial fibroid about one-third natural size, showing a solid part of a dark red colour suggestive of a hæmorrhagic infarct and a cavity which contained dark coloured fluid, probably derived from a colliquative necrosis of part of the fibroid.

Fig. 30. Section of a submucous fibroid about half natural size, shewing appearances in its lower part, next to the uterine cavity, suggestive of a hæmorrhagic infarct.

Fig. 31. Section of this fibroid at its base ×30, shewing distended lymph spaces and some hyaline change.

Fig. 32. Section of same tumour at junction of pale and hæmorrhagic parts ×30, shewing partially necrosed fibroid and many distended blood vessels.

Fig. 33. Section of same tumour in the middle of the apparent infarct ×30, shewing greatly distended blood vessels and more extensive necrosis.

Fig. 34. Section of surface part of apparent infarct ×30, shewing distended blood vessels separated only by necrosed septa of tumour tissue.

Fig. 35. Section of fibroid in anterior wall of uterus about half natural size. It had undergone "red necrosis" and was of a dark red colour, darkest at periphery. From a married woman æt. 26, who had had 2 children. The tumour was discovered at the time of birth of the second child, which required forceps, and hysterectomy was performed about 2 months later.

ADENOMYOMA.

Fig. 36. Section of uterus containing an adenomyoma partially submucous, about one-third natural size, associated with sarcoma of ovary. The tumour is situated in the upper part of the uterus and also forms a submucous growth. There is no loose bed and there are many chinks filled with endometrial tissue, scattered through the tumour.

Fig. 37. Section of uterus containing an adenomyomatous growth and one discrete myoma about half natural size.

Fig. 38. Section through the highest part of this growth at a considerable distance from the uterine cavity ×30, shewing miniature uterine cavities.

Fig. 39. Section of this adenomyoma ×30, shewing miniature uterine cavities in the substance of the growth undergoing distension.

COMBINATION OF ADENOMYOMA AND CANCER.

Fig. 40. Section of the edge of a cancer ×30, shewing simple endometrium to the left, cancerous growth to right and an island of simple adenoma deep within the muscle. There were several other similar islands, within the thickened uterine muscle, all separate from one another, whose connection with the normal endometrium was no longer traceable, except in the case of one of them. They were all independent of the malignant adenomatous or cancerous growth of the mucosa. From a single woman æt. 57. Menopause at 49, thin red discharge for last year, was emaciated and felt ill. Uterus explored and removed.

Fig. 37.

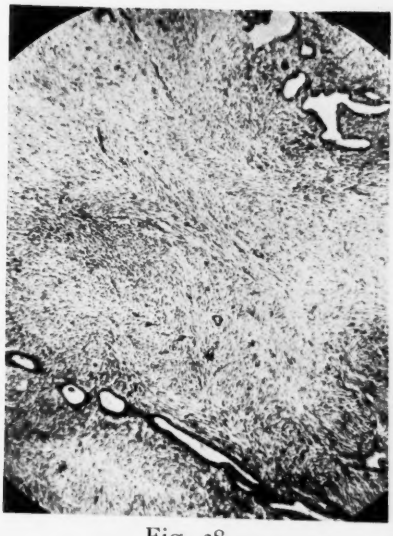


Fig. 38.

Fig. 39.

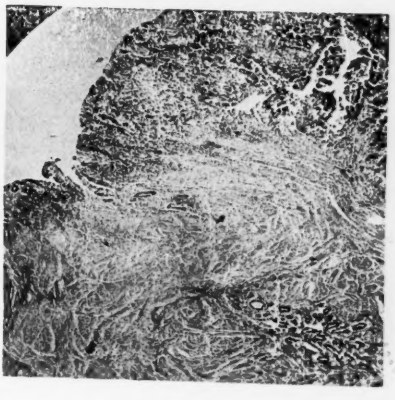


Fig. 40.

Method of Radical Extirpation of the Cancerous Uterus Based on a Series of 49 Cases.*

By E. Hastings Tweedy, F.R.C.P.I.,

Consulting Gynæcologist, Rotunda Hospital, Dublin.

The universal acceptance of Wertheim's hysterectomy for cancer of the uterus is a curious phase of modern surgery.

Before Wertheim read his paper in Leicester vaginal hysterectomy held the field almost undisputed. The restrictions of this operation were such that patients seldom presented themselves at a sufficiently early stage of the disease to warrant its performance. Gynæcologists were thus reduced to a condition of apathetic despair. In spite of efforts at selection the operator often found himself labouring blindly in a clumsy endeavour to clamp blood vessels or remove a uterus too much involved by cancer to be held securely in the grip of catch forceps. Little wonder then at the pessimism and despair exhibited.

As one of those privileged to listen to Wertheim's address in 1905 I remember how deep was the impression produced. An impression certainly not the result of suggesting radical extirpation by abdominal section, for others had advised and practised this before him. Mackenrodt, Kelly, Werder, and others had all competing operations. Their methods never became popular because of intrinsic difficulties, the time occupied in performing them, the pessimism of the authors, and above all the terrible primary mortality which followed in the practice of others attempting them.

Wertheim's claims were modest and consisted chiefly in the expressed statement that his operation enabled him to increase the percentage of operable cases. He did not indicate the determining factors which separated operable from inoperable but proceeded to a description of his operation step by step, and stage by stage, in a manner so convincingly simple that it left his hearers determined to test this method at the first available opportunity.

It was the modesty of claim, indefiniteness of indication, and precision of description which enabled Wertheim's operation to obtain universal acceptance, until now we speak of a "Wertheim" as a synonym for any wide abdominal extirpation of a cancerous uterus, without regard to the manner in which it is performed.

Berkeley in collecting the experience of British operators with this procedure, found the greatest difficulty in determining what

* Read at Obstetrical Section, Royal Academy of Medicine, Ireland, Feb. 7th 1911.

should be considered the special point characteristic of Wertheim's hysterectomy. He decided that the use of clamps on the vagina before its severance constituted this distinctive feature. This too we must conclude is really his claim to originality, and surely never before has an operation become classical on such meagre grounds. The clamps are not necessary to success and indeed they cannot be applied in many advanced cases still well within the range of operability. Thus in 48 operations I was unable to apply the clamps in 25 on account of tearing off of the uterus from the cancerous cervix.

Wertheim originally advised that the ureter be sought from behind as a preliminary to his operation. This is not always easy, particularly when pus tubes and adhesions from intestines necessitate much manipulation. In such cases it is well to make a free incision into the peritoneum over the ureter just after it has entered the pelvis and determine its position by sight and touch. It may be surrounded and controlled with a silk ligature, not tied. Its course can then with care, be well defined. In my hands loose ligatures on the ureters have never done any harm. The danger of disturbing the ureters from their beds has been much exaggerated and in the past has led to incompleteness of operation.

After the ureters are found the bladder is pushed well down in front. To effect this the round ligaments are tied and cut close to the pelvic wall. This opens the anterior layer of the broad ligament and the peritoneum above the bladder is now divided transversely. If not involved in inflammatory or cancerous processes the bladder can be readily wiped down with perhaps the aid of a few scissors snicks in the middle line. Should there be involvement with malignant disease a laborious dissection with scissors and knife becomes necessary, as wiping the bladder down causes extensive laceration of its structure. Although going down easily in front and at either side of the median line the bladder has a persistent tendency to climb up on and cling to the side of the cervix at a point where the ureters enter. This must be well liberated and pushed downwards and to the side to permit wide dissection of the underlying parametrium which is often involved in palpable cancer.

The bladder, rectum and ureters are wonderfully resistant to the inroads of uterine cancer, and in this region particularly I have been struck with the extent of the infiltration above and below the ureter without its actual involvement. This is not always so and in one of my patients I had to resect four inches of ureter before finding a sufficiently healthy portion to implant in the bladder. Death from peritonitis followed the tearing away of the ureter on the third day, after a fit of coughing.

To avoid tension on the ureter many devices have been suggested. The best of these consists in anchoring the bladder up to the ureter

rather than stretching the ureter down. This, in conjunction with firm stitching with fine silk may be successful, but never again shall I close a case with the least tension on the ureter. It would be much better to insert it into the bowel or bring it out through the abdominal wound. Insertion of the ureter into the bowel is a problem of considerable difficulty in cancer, for in my experience the portion of the bladder first involved is that which surrounds the ureteral orifice. This precludes excision of a piece of bladder mucous membrane with the ureter, without which ascending infection is said to be a certainty. I do not know whether it has been suggested to utilize a length of Fallopian tube to make good the deficiency in the ureter, but such an expedient seems to me within the range of possibility. Another suggestion said to avoid infection is to stitch the ureter into the coats of the bowel opened only down to the mucous membrane. Then the mucous membrane is incised in a tongue shaped manner, the apex of the incision being about one half inch below the ureteral orifice. When the muscular and peritoneal coats are stitched around the ureter, its orifice will be provided with a flap valve, kept open by the flow of urine, and these factors tend to prevent ascending infection.

To return to the steps of the operation, after pushing down the bladder the finger is forced through the broad ligament from behind, going just above the ureter.

At the next stage, namely the tying and division of the infundibulo-pelvic ligament, it is easy to go wrong. If it is done in a nibbling manner the ureter retracts into a mass of tissue from which it will be isolated with difficulty. The infundibulo-pelvic ligament should be clamped so that the end of the clamp goes down just to the exposed and isolated ureter. In this way very complete removal of the parametrium is possible without danger to the ureter.

In early cases of cancer the uterus is easily pulled up over the pubes and the sacro-iliac ligaments are tied and cut without difficulty. The peritoneum between them is divided and the rectum pushed well down. If the uterus is fixed by advanced cancerous disease it is often quite impossible to reach the sacro-iliac ligaments until after its removal.

In less advanced cases the parametrium can and should be ligatured. This obliterates the large veins and prevents troublesome oozing. Wertheim's clamps are now attached to the vagina well below the cervix. With these the uterus and vagina are pulled well up to permit amputation with long curved scissors. When extensive involvement is present it is at times impossible to push the bladder and rectum sufficiently free to apply the clamps. It is then much better to amputate the uterus as low as possible through the cancerous cervix. In such cases the value of preliminary disinfec-

tion by curettage, the actual cautery and a vaginal plug steeped in formalin is manifest. Such preliminary treatment is undertaken on three or four consecutive days before operation. It does not require general anæsthesia, but the last preparation should be done immediately before the operation whilst the patient is being anæsthetized. When the uterus has been removed it is comparatively easy to excise the remaining cancer tissue, cutting down on the finger placed in the vagina from above. Before doing this the formalin plug should be pushed out of the vagina from above and a new plug of iodoform gauze inserted.

If all the infiltrated tissue cannot be removed with the knife and scissors the Paquelin or electric cautery is very valuable for its scarring effect.

Wertheim recommended plugging the vagina and sides of the pelvis with iodoform gauze after the vagina had been narrowed to some extent by lateral catgut sutures, the peritoneum being finally closed over the gauze. This plug is thus outside the abdominal cavity, drains the cellular tissue, stops hæmorrhage and is easily removed through the vagina. The tendency of modern operators appears to be to dispense with the plug. In an early case it is no more necessary than after complete hysterectomy for myoma, but those men who think they can dispense with it altogether have not yet encountered the most advanced degrees of operable malignancy. At times it happens that the advance of the disease gives rise to an obliterating arteritis and the uterine artery can be divided without hæmorrhage ensuing. In these cases oozing, difficult or impossible to stop with ligatures is at times observed. For these the iodoform gauze plug is invaluable. A long strip is doubled and pushed through the vagina from above and the ends are packed firmly into the raw surface left by the removal of the parametrium. The peritoneum is sewed over this. If any cancer tissue escapes into the pelvis during the operation Douglas's pouch is plugged with iodoform gauze and the end brought out through the lower angle of the abdominal wound.

The difficulty of preventing general peritonitis from the opening up of cancer tissue is very great, but by no means impossible if sufficient care is taken to isolate the area of operation. For this purpose the patient is placed in the exaggerated Trendelenburg position, the intestines pulled well out of the pelvis and kept in the upper abdomen by two or three rolls of gauze bandage six inches wide. These bandages are best soaked in hot saline solution (115° to 118° F.) and made to envelope the viscera. Douglas's pouch is also protected with two or three small gauze wipes. These measures together with re-sterilization of soiled instruments, complete change of gloves and abdominal dressings after the removal of the cancer will ensure against peritonitis, but not always against sepsis, for in

my experience suppuration of the abdominal wound follows these operations more frequently than all other forms of abdominal section put together.

It has been suggested to stitch the preitoneum to the skin as a preliminary. I have tried it. It prolongs the operation and I am doubtful of its efficacy. This statement also holds good in respect to many other devices brought to my notice from time to time.

I am a strong advocate for the use of buried fine silk ligatures and sutures prepared after Kocher's method. They are perfectly safe in early cases but have no place whatever in advanced cancer. Catgut should be used here even for the abdominal wall and in the latter situation I re-enforce by silk worm gut mattress sutures through the skin and aponeurosis, tied on the skin over buttons at each side of the incision.

The gauze in the pelvis brought out through the lower angle of the wound is a valuable addition to our armamentarium for dealing with all forms of pelvic infection. It has the great merit of separating the septic focus from contact with the intestines until adhesions wall off the infected area from the peritoneal cavity. Then there is provided a channel for the escape of fluid. The plug may safely be left in three to five days and on its removal any septic secretion can be sucked up through a glass catheter attached to a syringe. If such secretion is present a small Kocher's tube is inserted and remains until the discharge stops or becomes free from micro-organisms.

Much has been said about cystitis after Wertheim's operation. It occurred in 6 of my cases, but always yielded to treatment and never was a serious complication.

Bladder injuries are not uncommon. In the majority of instances the finger, wipe or scissors causes a palpable opening. This happened 3 times. In 6 cases leakage occurred some days after operation, due to sloughing and not to direct injury at the time. These fistulæ are sometimes uretero-vaginal and sometimes vesico-vaginal. When injury to the bladder occurs during operation immediate repair is the obvious treatment. In two cases this tear was so low down that it could not possibly be reached through the abdomen. In these I attached catgut ligature to the upper border of the bladder wound and pulled them out through the vagina to have the leaking point well down. One healed spontaneously and the other was easily closed by a secondary vaginal operation.

Usually a fistula due to sloughing heals spontaneously. Only once had I to operate and this was in a patient who had very extensive involvement of the tissue between the bladder and uterus. Several days after operation a large vesico-vaginal fistula developed and showed no disposition to close. I attempted the usual vaginal operation between the third and fourth weeks. I was utterly unable to bring down the fistula and failed even to close it primarily. The

anterior vesical wall was prolapsed through the fistula, which was about the size of a shilling. The patient refused a second operation and went out but returned in a few weeks because of the discomfort from continuous dribbling of urine. On this occasion the condition was completely cured by abdominal section. I separated the bladder from the vagina, opened the top of the bladder to reach the fistula from within and freshened the edges, then enlarged the incision to make it continuous with the fistula and sewed them up as one wound. My technique for the removal of the parametrium and glands differs in no way from the accepted views of the present day.

The point of greatest interest in these cases of uterine carcinoma centres around the question of operability, and inoperability. From the description given it is apparent that fixation of the uterus, pain, purulent discharge, infiltration of the broad ligaments, and cachexia, I do not consider contra indications to operation. In patients with serious involvement of the rectum and involvement of the bladder with pyuria, recovery from immediate operation is not likely to give much relief to symptoms or prolong life. These alone are the cases I refused to operate on. Extreme fatness is a hindrance but not an absolute contra-indication to the abdominal operation. Cachexia may point to involvement of the liver, but not necessarily, and even were the liver involved to a slight extent I do not see that it constitutes an insuperable barrier to the removal of a cancerous uterus. Contrary to the popular belief cancer may be almost the least painful of mortal ailments. At autopsies I have seen most extensive malignant disease undiagnosed during life and causing an absolutely painless death. When cancer ulcerates it causes pain, horrible fœtor and destroys the appetite by absorption of toxins. The result is the most dreaded form of disease. To save such pain and distress is to me a justification for operation even if metastases are already present.

Much harm has resulted from the compilation of statistics, which aim at demonstrating the curability of the disease. The man who has a large percentage of absolute cures must have obtained them by refusing to operate on the majority of patients seen. In the care for his reputation as a brilliant and fortunate operator, he assigns to a hopeless outlook and a lingering, painful death numbers of poor women who look to him for relief. I have been told that a high operative mortality will deter people from seeking treatment for other and curable diseases; that it is a shame to subject the patient and her friends to the anxiety of a major operation which cannot be promised to give considerable prolongation of life. Sophistries such as these may be dismissed without discussion. Has it ever fallen to any of us to operate for cancer in a woman who would refuse a second operation if it offered the same amount of relief For myself I can say never. On the other hand hope, relief of suffering and ameliora-

tion of symptoms, distressing to the patient and her friends, amply reward the operator even if life is not prolonged to any extent. Thus one of my patients died 33 days after operation from continued local growth and toxæmia, but while unable to sleep from pain before operation, she had complete relief and no return of pain before death. Even a stronger argument is that no one can say how much benefit will be afforded, and to what extent life will be prolonged. The apparently simple cases often recur very rapidly and sometimes in very advanced cancer where it is almost certain that palpable masses of malignant disease have been left behind, the patient recovers and remains well for months and even years. In this connection it is important to remember that cancer of the uterus may extend by the lymphatics or by continuity but not always by both together. This explains why recurrence may soon follow early malignancy of the cervix with an absolutely mobile uterus, while a long period of immunity may result in cases where the broad ligaments are extensively involved. It would appear almost as if the severity of the inflammatory action locked the lymphatics and prevented permeation of the cells. It is also possible that an antibody is developed during the growth of cancer and that the removal of the main mass will raise the patient's resistance to an extent sufficient to destroy the remaining malignant disease. This is plausible and seems to be supported by a certain amount of clinical evidence.

I cannot terminate this paper without a warm expression of thanks to my two former Clinical Assistants in the Rotunda Hospital, Drs. J. K. Osborne and P. J. Keelan. To them is entirely due the credit of compiling the statistics and personally communicating with the doctors or the patients. This was voluntary work on their part, and was prosecuted with enthusiasm and persistence.

STATISTICS.

48 cases. 9 operative deaths. Percentage mortality 18·7 %.

Pathology of Cases.

	Cases.	Deaths.	
Squamous celled carcinoma of cervix	33	8	24·24%
Adeno-carcinoma of body	11	1	9·1 %
Carcinoma of ovary and involvement of uterus	2	0	0·0 %
Papilloma	1	0	0·0 %
Distinction between adeno- and squamous-cell carcinoma not made	1	0	0·0 %
	48	9	18·7 %

SELECT CLINICAL REPORT.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class).

Fœtus with Absence of Bladder and Kidneys and with Other Defects.*

By John Benjamin Hellier,

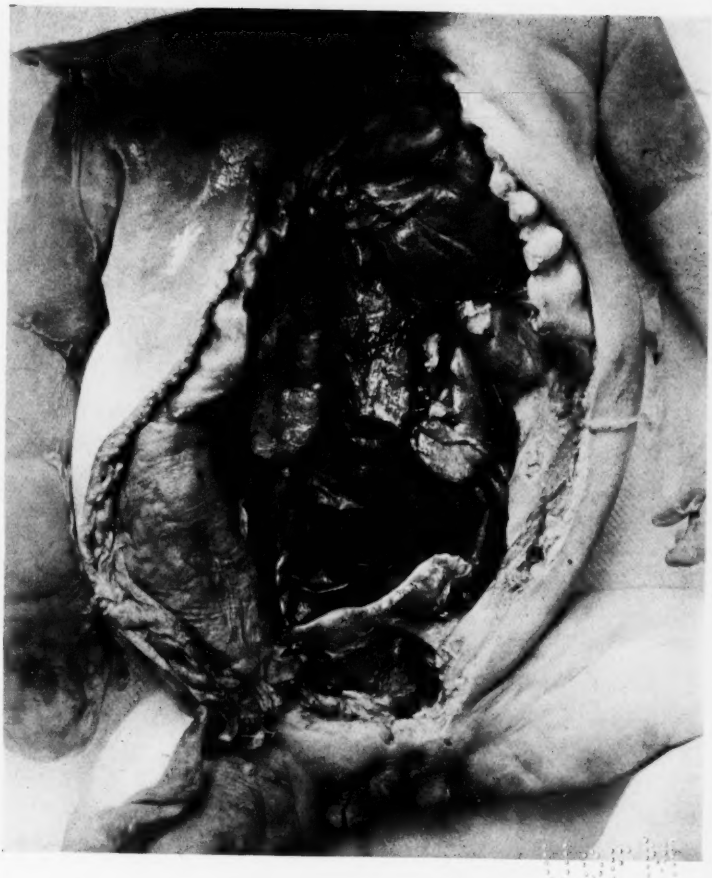
Professor of Obstetrics in the University of Leeds.

The fœtus shown was delivered in the Leeds Infirmary on Feb. 19 1911. The mother was a vi-para, aged 38, and her previous children had all been well developed. During her pregnancy she had suffered very much from vomiting and loss of appetite but from no other special symptoms, and she had no reason to suggest for the occurrence of any fœtal abnormality. She considered that she had reached full term. She was brought in from the extern maternity charity because labour was obstructed, the obstruction being due to arrest of the after-coming head by reason of extension of the arms. The child was born dead and the cuticle was peeling off, although there was no great maceration. The mother made a good recovery.

The fœtus measures 16 inches, and weighs 4 pounds 2 ounces after removal of liver and intestines. In development it corresponds with the eighth lunar month. The nails throughout are badly developed. The extremities are webbed. The right hand has the digits all webbed together. The thumb is separated to the root of the first phalanx, and shallow notches separate the tips of the other fingers. In the left hand the thumb is nearly normal, the tips of the index and middle finger are separated, but all the others are webbed quite to the end.

On examination of the external genitals the sex at first appears doubtful. The organs are of the female type, but the clitoris is three-eighths of an inch long, and there is only one opening below it. Each labium majus presents a nodular swelling above the middle, and there is some adhesion of the labia below, so that there is some

* Read at the North of England Obstetrical and Gynæcological Society, March 17, 1911.



suggestion of male organs with hypospadias and divided scrotum. Dissection, however, shows that the labial swellings contain only cellular tissue and that the single aperture is the vaginal introitus, the meatus urinarius being wanting. The internal pelvic organs consist of well-formed uterus, ovaries and oviducts. There is no trace of urethra, bladder, ureters or kidneys. The suprarenal glands are large and well-developed on each side, and each measures $1\frac{3}{8}$ inch from above downwards, and $\frac{5}{8}$ inch across. On microscopic section their structure is normal. Professor Jamieson, of the Anatomical Department of the University, has kindly examined the specimen, and has pointed out that the horizontal duct of the parovarium is also wanting. These defects are explained by saying that the Wolffian duct and its derivatives are missing.

It is very interesting to find that a fœtus can attain this stage of development without kidneys. There was no opportunity of examining the liquor amnii.

The photograph shows the fœtus with abdomen and thorax opened and the liver and intestines removed. (Some black paper has been used to throw into relief the organs described but it covers nothing but the abdominal wall and vessels.) The uterus and appendages are well seen, the right ovary being vertical. The large adrenals are very prominent. There is no trace of kidney or bladder. The large clitoris is seen below. An exploratory incision has been made in the right labium.

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

LIST OF COLLABORATORS:

LONDON. Alban Doran, F.R.C.S.; S. Jervois Aarons, M.D.; J. Barris, M.B.; A. L. H. Smith, M.B.; F. E. Taylor, M.D.; C. White, M.D.; J. A. Willett, M.D.
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BIRMINGHAM. Frederick Edge, M.D.; H. B. Whitehouse, M.S.
MANCHESTER. W. Fletcher Shaw, M.D.
SHEFFIELD. Miles H. Phillips, M.B.
CHELTENHAM. C. J. N. Longridge, M.D.

Intravenous General Anæsthesia with Ether.

TSAKONA (*Gynækologische Rundschau*, v. Jahrg., 3 Heft).—The comparatively large death rate after inhalation anæsthesia (1 in 2,000 for chloroform, 1 in 5,000 for ether) has led to attempts to procure a better form of administration. The author records the details of 25 cases in which he obtained general anæsthesia by intravenous injection of ether according to the method suggested by Burkhardt. Varying quantities of a 5 per cent. solution of ether were employed. For example, for an abdominal hysteropexy for incomplete prolapse an initial dose of 100 cub. cm. was used. For the entire operation, which lasted 18 minutes, 700 cub. cm. were required.

In many of the cases after the operation there is the appearance of albumen, blood cells, hæmoglobin, or cell casts in the urine. With rare exceptions the urine, however, returns to normal within 24 hours. Out of the 25 cases the urine was affected in 15.

In one case there was some collapse with asphyxia after the administration of 350 cub. cm. of the solution. In another case there was a slight catarrhal involvement of the lungs lasting for 30 hours.

In view of the risks associated with the inhalation method of anæsthesia and, apart from the transient renal and other complications referred to above, the good results attending the intravenous injection of ether, the author states he employs the latter, if not in general, yet in suitable cases. J. Y.

Active Substances in the Uterus and Ovaries.

G. SCHICKLE (*Muench. med. Woch.*, 1911, No. 3, S. 123).—Many cases of uterine bleeding for which, finally, hysterecetomy has to be pereformed, are found to show no discoverable lesion on anatomical examination. And chemical explanations have been sought for these hæmorrhages. We know that the menstrual blood clots very slowly or not at all, and this is probably due to the existence of a coagulation preventing substance in the uterus. It was necessary to find if there existed in the uterus such a coagulation-restraining substance. So far as was known, juices

expressed from organs of the body have an accelerating effect upon the coagulation of the blood.

With blood plasma of a goose the uterine juice retarded coagulation for 6 days, whereas with the expressed juice from goose muscle used in control experiment the goose plasma coagulated in one minute.

Expressed juices of brain, liver, kidneys, muscle, placenta were used and they all accelerated coagulation.

The power of retarding coagulation was remarkably present in the expressed juices of uteri removed for bleeding caused by myoma or where the anatomical conditions were normal.

Heat and boiling did not destroy this power of the uterine juice nor did dialysis, but neutralization of the juice, which is acid, interfered with its power of retarding coagulation.

When the uterus is simply chopped up these results are not obtained, because the ordinary lymph of the spaces aids coagulation, just as is the case with all other organs. The pressure extracts of the thyroid, thymus, adrenals and testicles also retarded coagulation, and the juice from the corpus luteum had a most intensive action. Follicular fluid has, remarkable to relate, no retarding influence. Cow's ovaries offer a free supply of this. This intensive coagulation-restraining power is in the uterus, tubes and ovaries, and not in the blood, as was proved from the same individual.

During menstruation, when the uterine blood is retarded from clotting, the general blood of the patient has been shown to be normal in coagulation reaction. If this clotting retarding agent be injected intravenously into an animal, its action ceases very soon, as it is quickly excreted by the kidneys, and can be found in the urine.

The injection of these pressure extracts of the ovaries, uterus and tubes into animals produces a fall in blood pressure. Alcoholic extracts can be made.

These injections often kill the animal, and in many cases there are fits or spasms and sometimes excessive lachrymation and action of bladder and bowels.

Extracts of suprarenal cause increase of blood-pressure with a fall later. The sinking of the blood-pressure is due to peripheral dilatation of the vessels from relaxation of the smooth muscle fibres.

Barium chloride which acts upon the fibres will raise the blood-pressure which uterine extract had lowered.

Adrenalin also acts peripherally and hence the antagonism to uterine juice.

The characteristic action of pressure extracts of uterus, ovaries and corpus luteum is

(1) Prevention of coagulation "in vitro."

(2) On intravenous injection they cause fall of blood-pressure and a general retardation of blood-clotting power.

(3) By causing fits and strong convulsions and with intensive action there is slowing of respiration and pulse with perhaps death.

(4) Many animals further have involuntary action of bowels and bladder.

This symptom-complex recalls that caused by serum anaphylaxis and the injection of peptones or peptonezyme. This reaction is given by extracts of stomach, small and large intestine and pancreas, but not by extracts of spleen, adrenals, testicles, thymus, submaxillary gland, lymph glands and mucous membrane of the œsophagus.

While the expressed extract of the uterus and ovaries has marked coagulation-retarding power "in vitro," peptonezyme has none. Other means of differentiating these active bodies are given.

Choline causes fall of blood-pressure also, but while atropine removes this it has

no effect upon the fall produced by the active bodies of the uterus and ovaries. These rough sketchy investigations require wide extension and working up, but they are helpful in illuminating physiological and pathological questions which are not yet elucidated: such as the process of menstruation (interrupted coagulation of menstrual blood), also the blood-pressure changes during menstruation, the derangements after castration (vasomotor disorders), the uterine hæmorrhages without anatomical lesion, and many other phenomena for which we can now offer explanatory theories. F. E.

Contributions to Urology and Gynæcology.

MIRABEAU (*Monats. f Geb. u. Gyn.*, 1911, Bd.33, S. 193).—The cardinal symptoms of pyelitis in pregnancy are well known, acute febrile condition with high temperature but relatively slow pulse, headache, vomiting, some apathy, further, local tenderness principally in the region of the right kidney, with fulness on palpation, and evacuation of pus rich in organisms along with the urine.

Mirabeau points out that in literature little is to be found about the earlier state of this affection, which may however be observed on close study weeks or months before evident symptoms occur. The trouble is usually found in the second half of the period of pregnancy, and particularly between the seventh and ninth months, and amongst other signs such as intestinal catarrh and pain on micturition, one stands out significant above its fellows and yet till now insufficiently remarked, namely vomiting in the latter half of the prgenant period.

This may occur in women who have had very little trouble from this cause in the early months of pregnancy, and when it does appear Mirabeau looks on it as the frequent manifestation of commencing urinary trouble.

From the ordinary vomiting of pregnancy, this form may be distinguished by its persistency, and by a feeling of discomfort which does not always lead up to actual vomiting, and which is not relieved when vomiting does occur. It is not infrequently recognised by patients who have had previous experience of the usual "morning sickness" as being distinctly different in character.

The writer emphasises the need for careful urine examination in such cases, especially the microscopic examination of the freshly passed urine preferably a catheter specimen, frequently repeated seeing that as is well-known, the condition is often one-sided, the right kidney being first affected with the result that not infrequently there is absence of the secretion from the affected side for a time, so that systematic examination reveals alternately clear normal, and cloudy unhealthy urine, which is characteristic of pelvic kidney trouble, as contrasted with bladder affections.

In this early stage one need not expect to find well marked pus in the urine which mascroscopically may appear almost clear or slightly opalescent, but in which, after centrifuging, large quantities of bacteria are found with occasional leucocytes and epithelium from the pelvis of the kidney. The urine is always acid and shows no casts or bladder epithelium. The writer then proceeds to advise cystoscopy and ureter catheterisation in all such cases for accurate diagnosis.

Local treatment of the bladder is to be avoided in such cases though the condition is not infrequently diagnosed as primary cystitis in this stage. Most important of all is rest in bed with the pelvis slightly raised, continued it may be for weeks, abundance of warm fluids as tea, milk, warm mineral waters, if vomiting is severe, frequent rectal saline injections and drug treatment in the form of urinary disinfectants especially urotropin and helmitol, which however, have been observed by the writer to be more likely to cause stomachic disturbance of considerable degree in pregnant women, than in other circumstances, and which

must be used with caution. Creosotal has also frequently proved useful and especially collargol in rectal injections administered daily.

Mirabeau then goes on to discuss tubercle of the bladder and chronic intermittent hydronephrosis. W. R. P.

Menorrhagia in Virgins.

Siredey and Lemaire (*Revue de Gyn.*, Feb. 1911) give details of four cases of severe and continuous uterine hæmorrhage lasting from three to six weeks occurring in virgins aged respectively 14, 16, 18 and 20 years. The hæmorrhage in each case resisted rest in bed and all medicinal measures including subcutaneous injections of serum and gelatin but were cured by curettage. The curettings showed an intense proliferation of the glandular elements of the endometrium with a tendency for the epithelial cells to grow inward towards the lumen of the glands; the stroma was healthy. No cause could be assigned for the hæmorrhage. The hymen was intact in each case and the uterine appendages were healthy. C. W.

Tuberculosis of the body of the Uterus.

Alessandri (*La Ginecologia Moderna*, December 1910) describes a case of tuberculosis of the uterine body, limited in extent and not involving other organs. He points out that, generally, tubercular lesions affect the adnexa and spare the uterus. If affected, it is secondary, though cases are reported which are limited to the uterus and chiefly to the endometrium, more rarely to the cervix. Cases in which the myometrium is affected are usually accompanied by, and secondary to, lesions of the endometrium. In the case operated on by Allessandri he found a large caseous focus (size of a small apple) in the myometrium of the anterior wall, evidently primary in the genital apparatus but secondary through the blood-stream to some unknown internal focus. The woman, aged 43, could give no history of tubercular infection and showed none of its objective signs. Though married twice, she had had no pregnancies. Menstruation had been regular till shortly before admission to hospital, when she had suffered from menorrhagia and pain in the lower part of the abdomen. Objective examination showed the uterus to be enlarged and anteverted with a rounded swelling anteriorly. On section of the uterine tumour it was found to be a caseous mass limited by healthy muscular fibres on every side, the endometrium being healthy except in the immediate vicinity of the mass where a few small nodules of recent tubercle were seen.

Inoculation of a guinea-pig gave a positive reaction.

The skin reaction of the woman tried after operation was positive after 24 hours, but clinically no tubercular lesion could be detected.

The woman left hospital perfectly cured and suffered no evil after-effects.

J. H. F.

Operations for Retrodisplacements of the Uterus.

J. M. Baldy (*Jour. Amer. Med. Assoc.*, 1911, vol. lvi, page 481).—Several operations were described at a meeting of the Section of Gynæcology of the American Medical Association held at St. Louis last June.

Baldy's operation consists in pulling the round ligaments through a hole in the broad ligaments and fastening them together on the back of the body of the uterus, which is thus held in a sling. Coffey describes an operation in which he takes up the slack of the peritoneum by plicating sutures in front of the uterus. The slack of the round ligament is then folded down on the anterior surface of the uterus, and sutured in position.

F. F. Simpson describes still another operation which is a modification of the old Alexander operation. In this a median incision is made below the umbilicus and the

round ligament is caught in a pair of forceps an inch and a half from the uterus. The skin is retracted and the fascia is punctured an inch and a half to the side of the lower angle of the incision. A forceps of special curvature passes through this puncture obliquely through the rectus muscle and then beneath the peritoneum by the side of the round ligament until it reaches the forceps holding the round ligament. The curved forceps then penetrates the peritoneum, grasps the round ligament, and is drawn out. The round ligament is then fastened and suspended just beneath the fascia by a suture which closes the rent in the fascia, and at the same time holds the ligament firmly.

The ligament should not be attached to the upper surface of the fascia, since any permanent perforation of the fascia invites hernia. The round ligaments should not be fastened together in the middle line since this may draw the uterus too far forwards holding it in contact with the line of incision with possible formation of a suspensory ligament as a result. C. N. L.

Operations for Antefixation of the Uterus.

Schauta (*Gynækologische Rundschau*, v. Jahrg., 3 Heft).—The author, in the first place, disposes of what he calls the theory of Theilhaber: that the symptoms exhibited by a patient with a uterine displacement are independent of the displacement and are caused by the complications present. Schauta agrees so far with this but he refers to the immediate disappearance in some cases of the symptoms after the correction of the displacement and to the fact that when, unknown to the patient, the displacement recurs there may be an immediate appearance of the symptoms again.

Of the abdominal methods of operation Schauta has practised the direct ventral fixation (Leopold-Czerny) and the indirect ventral fixation (Olshausen-Sänger), and the operation of Doléris. He has performed the first two methods in all 23 times. Of 17 cases, which were followed, the result as far as the displacement went was good in 15 cases, bad in 2. The independence of the "orthopædic" and the functional results is demonstrated by finding that, whereas in the 2 cases with a faulty lie of the uterus there were no symptoms, in 2 cases where the functional results were bad the position of the uterus was perfect. In one case the cause of this was an inflammation of the adnexa which had developed subsequent to the operation, in the other case it was due to tabes. In 2 cases after the Olshausen-Sänger operation a normal pregnancy occurred. In one the displacement recurred after the labour.

Schauta has modified the operation for antefixation devised by Doléris. The latter, in making the abdominal wound, divides the fascia longitudinally or in the crucial manner of Küstner. With a knife he makes a small opening in the abdominal wall about halfway along the wound and 2–3 cm. from the cut edge, passing through aponeurosis, rectus, and peritoneum. Through this wound, which is made on each side, he pulls a loop of the corresponding round ligament by means of a catch forceps. The ligament is sutured to the outer surface of the fascia. Schauta prefers to make the incision in the fascia entirely by the transverse method of Pfannenstiel. There is not the same strain on the sutures with this method and the healing is better. Instead of making the opening through the abdominal wall with a knife he transfixes the fascia, muscle and peritoneum on each side with a pair of artery forceps, by which he pulls through a loop of round ligament, at least 1 to 1½ cm. long. The ligaments are brought through the lower fascial flap and they are sutured in position by silk. With this method there is less risk of hernia. He has performed this operation 50 times in the last year. Of these, 4 patients had retroverted gravid uteri. Of the whole, 31 cases were followed. In none was there a recurrence of the displacement. Seven women became pregnant, in all 12 times. Of these 8 were normal, 3 abortive, whilst in one it was extra-uterine. This was operated on successfully.

The operation was carried out in the four cases of retroverted gravid uterus because a manual reposition was prevented by adhesions. In none was there a disturbance of the pregnancy or a recurrence of the displacement after labour.

In 3 cases after this modified Doléris operation Schauta found functional disturbance, due to hysteria, and oöphoritis, which were in no way dependent on the operation.

Finally Schauta discusses the results with vaginal methods of antefixation. Those carried out were: (1) Direct vaginal fixation (Dührssen), (2) Shortening of the round ligament by doubling it on itself, (3) Approximation of the ligaments and fixation in the angle of the vaginal wound, (4) Stitching of the ligament into a slit near the urethral orifice after a longitudinal incision of the vaginal wall. The results of these operations were in all followed out in 132 cases; of these there were 47 objective and 32 subjective failures. The proportion of "orthopædic" failures to functional failures was as 35·62 to 4·4 per cent. In the movable cases the recurrence was 23 out of 96, *i.e.*, 24 per cent. The results of the vaginal operations are seen to be inferior to those attending the Doléris operation.

Schauta does not willingly perform the Doléris operation with a thick abdominal wall or when at the same time a plastic operation on the perineum or vagina is to be carried out. J. Y.

A Case of Complete Inversion of the Uterus of Fourteen Years Standing.

S. E. Tracey (*Amer. Journ. of Obstet.*, Feb. 1911).—A woman, aged 53, viii-para. In her last confinement the patient was attended by a midwife, she was in labour 48 hours, the child weighed 10 lbs. After delivery patient was very exhausted. There was difficulty in the delivery of the placenta. She remained in bed for four weeks, the bleeding continued for two months. During the next ten years she suffered from a sensation of fulness in the vagina, of pressure on the rectum, and pain during defæcation, and four years before the operation a lump protruded through the vulva which she could replace. From then on, she bled almost continuously; the protruding part pushed its way down, the pelvic discomfort increased, she developed severe pain which forced her to remain in bed.

Bimanual examination revealed a freely moveable tumour in the vagina which protruded through the vulva when the patient bore down. Neither uterus nor appendages could be felt above the mass.

Vaginal hysterectomy was performed as reduction was impossible. The infundibulo-pelvic and round ligaments were sutured to the angles of the vagina and the wound was closed except for a small opening through which a strip of gauze was inserted.

Section of the uterus revealed an intramural fibroid situated in the fundus of the organ. Microscopic examination showed that the endometrium had been entirely destroyed. S. J. A.

Malignant Fibroid: Interstitial Lipomyosarcoma.

Sitzenfrey (*Zeitschr. f. Geb. u. Gyn.*, 1910, vol. lxvii) publishes a full report of a case of much importance in relation to the question of "malignant fibroid" or malignant degeneration of uterine fibroids. The patient was sixty-two years old, and she consulted her doctor for a fœtid vaginal discharge, not observed for over four weeks, with occasional escape of much watery blood. But it was found, after the uterus was removed, that there were two minute mucous polypi on the mucosa of the cervical canal and a tongue-shaped, broad, thick, mucous polypus or cystic adenoma over an inch long attached to the fundus, causing dilatation of the uterine cavity. The endometrium was thickened but not ulcerated and free from myomatous

growths. The menopause had occurred at the age of 55, the period had always been regular and the patient had borne 2 children, the youngest being 36 years old. There remained a distinct objective symptom, a firm tumour bearing all the characters of a uterine fibroid rose to within three fingers' breadth of the umbilicus.

Sitzenfrey operated, removing the whole uterus and appendages, the patient recovered, being discharged from hospital September 23, 1909. There is no after history. The uterus bore some subserous fibro-myomata of trifling bulk but an interstitial growth as big as a child's head lay in the anterior wall. The condition of the uterine cavity has been already mentioned, it accounted for the discharge which had therefore no causal relation to the interstitial growth. On making an incision to bisect the growth, the author found that it was half lipomatous and half myomatous, but the myomatous portion showed suspicious elements. A coloured drawing of the cut surface of the tumour and a coloured photomicrograph of a microscopic section are added to the report. There were firm lobules of myoma tissue separated by thick intervening tracts of fat, that furthest from the myoma tissue being made up of lobules of crisp normal fat, with a kind of imperfect capsule of connective tissue, whilst the lipoma tissue adjacent to the myomatous growths was softer and invaded some of the growths extensively. The crisp fat showed under the microscope characteristic well-formed cells; lipoblasts, cells free from fat, were detected in the connective tissue, others lay near the fully developed fat-cells and bore fat-drops in their interior. The myoma tissue showed very distinct though not by any means homogeneous sarcoma cells. Sitzenfrey admits that some of the cells seemed distinctly transitional, hardly to be distinguished from the plain muscle cells. On the other hand other sarcoma cells were of a type associated with high malignancy, small spindle cells, large spindle cells and in parts distinct giant cells. The sarcoma cells likewise showed signs of every form of degeneration. There were also round cells in the sarcoma tissue, bearing fat-drops; Sitzenfrey discusses their relation to the sarcoma and lipoma tissue. There could be no doubt that the fat cells in the latter were derived from the lipoblasts, and as fat is not naturally found in the uterine muscular tissue, the lipoma tissue in this case must have been derived from some displaced embryonic elements, as Walkhoff has demonstrated. A. D.

Retroperitoneal Cysts Originating in the Ovary and Parovarium.

Vanverts and Paucot (*Ann. de Gyn. et d'Obstét.*, Feb. 1911) point out that any cyst of the broad ligament may burrow down towards the pouch of Douglas and then work up behind the sigmoid so that when seen in a late stage it may appear to be wholly retroperitoneal. The layers of peritoneum found in front of these cysts consist of the anterior layer of the broad ligament, then the posterior layer which has been gradually pushed backwards and then upwards so that it has been turned on itself and now looks upwards and forwards instead of backwards. Lastly the cyst is covered by both the layers of the mesosigmoid. Occasionally the cyst may be found behind the small intestine, and rarely may strip up the peritoneum from the posterior aspect of the uterus and thus reach the broad ligament of the opposite side.

These cases present difficulties to the operator on account of their intimate relation to the ureter, intestine and iliac vessels. In the three cases of which the authors have had personal experience they laid bare the ureter on two occasions and in one of these a ureteric fistula resulted from sloughing. The interference with the blood supply to the intestine made intestinal resection necessary in a case reported by Bérard and Patel—to avoid this complication the authors incised the peritoneum external to the colon and worked inward without tying off the colic arteries. They give full details of three cases which they operated on; two out of the three patients died. C. W.

Ovarian Pregnancy.

Ernest B. Young and Lawrence J. Rhea (*Boston Med. and Surg. Journ.*, Feb. 23 1911) report a case where a minute fœtus was detected in a cavity full of blood occupying the outer part of the left ovary. The patient was a single woman aged 27. The catamenia had always been regular until eight months before she came under Young's observation, when an attack of menorrhagia occurred and the curette was employed. The patient then stated that she had suffered from hypogastric pains for about a year before the attack. After the curetting, there were irregular attacks of uterine bleeding for eight months, the last three, very severe, occurring within the three weeks before the patient consulted Young. He defined enlargement of the ovaries, especially the left. They were not fixed, but moved with the uterus. When the pelvis was explored a few days later, it was clear that the left ovary had increased in size. Young operated, and found a layer of old clot covering the pelvic viscera which showed signs of old peritonitis. Some relatively soft adhesions were separated on the left side of the pelvic cavity. A large recent clot was thus exposed and it was found to envelope the left ovary completely. On the surface of the ovary was a red mass, bearing a bleeding point, clearly the source of the clot free in the pelvis. The mass looked like a corpus rubrum. The fimbriated extremity of the left Fallopian tube was closed and adhered to the bottom of the pelvis. The connections of the ovary and tube with the uterus were normal. The right ovary showed small cystic degeneration, it did not bear a recent corpus luteum, and the right tube was inflamed, but not obstructed. The appendages were amputated. The left appendages were at once placed in formalin and laid open a few days later. A minute embryo was then exposed, it lay in the red mass which appeared to be a corpus rubrum, certainly in ovarian tissue; the ovary was surrounded by clot which had issued from the mass, and was connected with no other structure save in the normal manner. The Fallopian tube was examined, sections being made at its proximal end and central portion. There was evidence of salpingitis but no chorionic villi nor other products of conception could be detected in the tubal mucosa or walls. The red mass was a gestation sac full of clot, it had distinct walls which bore well developed chorionic villi. A. D.

Unilateral Absence of the Ovary with rudimentary development of the Tube and normal formation of the Uterus.

E. Sachs (*Monatr. f. Geb. u. Gyn.*, Bd. xxxiii, 1911, H. 2, S 135) describes the case of a multipara aged 28 who died after an operation for appendicitis in the fifth month of her sixth pregnancy. She exhibited during her lifetime no evidence of any malformation externally.

The autopsy showed the uterus to be normal in position and symmetrical, the right tubal opening was present as well as the left but no sound could be passed on the right side. The left ovary was enlarged and contained a dermoid, the left tube and round ligament and broad ligament were normal.

On the right side no ovary was to be found, and the ovarian ligaments were absent, the peritoneum was quite smooth without any cicatrix at the point where these should be given off. Nowhere in the abdominal cavity was there any trace of any body in any way resembling an ovary. The round ligament appeared in its usual position and size running to the inguinal canal. From the ligament the peritoneum proceeded to the side of the uterus and passed to the pouch of Douglas and to the parietal peritoneum without any formation of the broad ligament. Close behind the round ligament in the normal situation of the tube lay an elongated body with a diameter of 4 mm. which appeared to be the tube, it had no fimbriæ and on microscopic examination was found to have no lumen or any trace of epithelium, and to consist of loose connective tissue and irregularly disposed unstriped muscle, with remarkable development of blood-vessels.

The condition seems to be unique in literature. Sachs proceeds to discuss the question of development arrest in this case and give a useful list of references in connection with malformations of the organs.

Oophorectomy and Tuberculosis.

Mirto (*La Ginecologia Moderna*, December 1910) communicates the results of oöphorectomy in experiments made on tubercular rabbits. In 1903 he had published an account of experimental infection after oöphorectomy, showing that this operation made the organism more resistant to infection, and therefore he surmised that the improved condition of tubercular patients who had undergone hysterectomy might be due to the oöphorectomy which accompanied the operation. To prove this hypothesis he performed a series of experiments on rabbits, which he first infected with bovine tuberculosis by means of injections into the auricular veins, and when the disease developed, he removed the ovaries from some, leaving others to serve as controls. The first set of experiments was conducted on 10 rabbits which had an injection of 1 cc. of an emulsion of 1 cc. of culture in 25 cc. of physiologic salt solution; 14 days later he castrated 5, which died on an average 31 days after the operation. The controls died within 18 days after operation on the others. In another group of 10 rabbits, 1 cc. of emulsion of 1 in 50 was injected. Five were castrated after 18 days. The controls died on an average 24 days later, the animals operated on, 51.

Autopsy showed that all the rabbits had died of pulmonary tuberculosis. Sometimes tubercle was found in the spleen, rarely an isolated focus was seen in the kidney. In the second group the tubercular foci were smooth, and as if surrounded by a pellucid halo.

These experiments seem to indicate that oöphorectomy has a beneficial effect on tuberculosis, as in all cases the life of the animal was lengthened. Further experiments on a larger number of animals and with infections less rapid in evolution may prove definitely if, and how much, oöphorectomy influences tuberculosis. J. H. F.

Primary Cancer of the Fallopian Tube forming a palpable Abdominal Tumour.

Cullen (*Trans. Amer. Gynæc. Soc.*, 1910, vol. xxxv; *Johns Hopkins Hosp. Bulletin* (with drawings and after history), Jan. 1911) reports a case where a carcinoma of the right tube had attained such proportions as to be readily palpable through the abdomen. The patient was a married woman aged 46, under Howard Kelly, in a private home. She complained of a painful mass in the lower part of the abdomen. Two years previously the patient had an attack of crampy pains in the right iliac fossa, it persisted and more recently pains were felt on the left side. The pains radiated down the legs, which had both become swollen. The patient seems to have been pregnant once only, at 18, when she miscarried. The periods, previously regular, had become irregular and profuse for the last two or three months. There had also been free leucorrhœal discharge for some time, associated for the last year with some odour and blood. The uterus was removed, with the Fallopian tubes, by bisection, with a small piece of intestine bearing a little subperitoneal cyst, neither the ovaries nor the subserous cyst were preserved for examination, but at the operation no glandular or peritoneal infection could be detected. The right Fallopian tube was dilated to an extreme degree and contorted in the usual manner. It was five inches and a half in length, four and three-quarters in breadth and nearly four in thickness. The left tube was slightly enlarged and dilated, both adhered to the viscera near them. The uterus was markedly atrophied. The greatly enlarged right tube bore firm arborescent papillomatous masses, with but few areas of broken down tissue. They were invested with several layers of very regular cylindrical epithelium, proliferating at certain points until solid gland tissue had developed. Hence the

growth was an adeno-carcinoma. The left tube bore incipient growths of the same type. The author finds no record of any other carcinomatous tube that has reached such large proportions [excluding, of course, all cases of malignant tubo-ovarian cyst, several cases of large cancerous tubal cysts will be found in the Reporter's "Tables of Primary Cancer of the Fallopian Tube," JOURNAL, October 1904, and January 1910. No. 16 (Fischel) "oval tumour reached above umbilicus," No. 34 (Hofmeier) "abdominal tumour reached to umbilicus," No. 79 (Danel and Duret) "half way to umbilicus," and No. 93 (Von Franqué) "Tube formed a tumour which reached to umbilicus."—*Rep.*]. Over three years after the operation a large mass could be defined in the abdomen. A. D.

Creatin in the Urine during Pregnancy.

VAN HOOGENHWYZE and TEN DOESCHATE (*Ann. de Gyn. et d'Obstét.*, Feb. 1911) conclude that a high percentage of creatin during pregnancy is of serious import. They have found it increased in eclampsia and its increase should be regarded as a sign of hepatic deficiency showing that the liver is unable to convert the creatin into creatinin. It may thus be taken as a sign of toxæmia even if the kidney functions seem normal. C. W.

Further Experiences with Stroganoff's Treatment of Eclampsia.

E. ROTH (*Muench. med. Wochenschrit*, 1911, No. 5, S. 249).—In spite of the good results which Stroganoff obtained in 400 cases of eclampsia with his prophylactic method of treatment of eclampsia, this method has not been tried extensively except at Dresden. This is partly due to the fact that his method, which consists in planned administration of morphia and chloral, was not accepted as new and partly because former results of treatment with these drugs were not at all favourable.

Further, the modern spirit of midwifery is against medication and expectant treatment and all for surgical interference. Since, however, midwifery is in the hand of general practitioners and is carried out in private houses it is our duty to welcome a method which avoids a critical operation and offers results at least not worse than those of forcible delivery.

Fifty cases have been treated in the Dresden clinic by Stroganoff's method, and these include all the cases of eclampsia. No severe ones were treated by other methods, but every case had Stroganoff's treatment.

The dominant idea of the treatment is to prevent any further excitement of convulsion either from internal or external stimuli. This is attained in two ways. On the one hand the patient must be removed from all causes of disturbance and should sleep or slumber and no one but the midwife and doctor should be allowed admittance to her room. She has 0·015 grm. of morphia hypodermically immediately on admittance. After placing her in the isolation room she is examined and cleaned up under light chloroform narcosis. Especially is this necessary with the internal examination, the subcutaneous injection of morphia, catheterisation, and the rectal infusion of 300 cc. of milk or saline containing the chloralhydrate. Twenty drops of chloroform suffice for these.

The important portion of the treatment is the carefully planned administration of the drugs. Stroganoff's scheme is given :—

Stroganoff gives chloralhydrate in gum arabic :—Chloralhydrate gr. 31; Mucilag. gum. arab. 310 grams. Aq. destill. nearly six ounces.

If the indications point to a safe and easy delivery for mother and child the labour is ended, generally with forceps. If there is no contraindication the membranes are ruptured. With continuous cramping contractions forced delivery is

indicated. It was not found necessary to do this in any one of the 500 cases. If the patient shows by restlessness that a fit is threatening a few drops of chloroform are again given; during the fit oxygen is given. A free use of digitalin and camphor is made.

Blood-letting was only done for œdema of the lungs. Saline injections of about half-a-pint are frequently used. Nothing is given by mouth until the patient is conscious, lest aspiration pneumonia be caused. The chloral hydrate was continued for 2–3 days in 15 gr. doses after the detailed plan had been carried out. In eclampsia of pregnancy the planned dosing was repeated if fits recurred or threatened. It was only in very slight cases that treatment ceased with the planned doses.

Of the 50 cases, 37 were during labour, 6 during pregnancy and 7 in the puerperium. Four died, but one was a young woman with heart and kidney trouble of old standing.

The percentage mortality is 8 per cent. as against 19 per cent. before this method was tried. The fœtal mortality was 18·6 per cent. as against 55 per cent. formerly.

It is not owing to the rapid onset of labour after the commencement of treatment that such good results have occurred because in 3 cases the labour was over and in many cases labour did not come on for hours or even days after the fits ceased.

The fits ceased at once on starting the treatment in 17 cases out of the 50. In 19 out of the 50 cases artificial delivery was effected 15 times by forceps, 3 times by perforation and once by breech extraction.

No doubt, this Stroganoff treatment can be carried out better in hospital than in private but it is especially valuable in general practice and the author desires to draw attention to its advantages and value and to extend its use in the obstetrical world.

F. E.

A Brief Analysis of Ninety Cases of Puerperal Eclampsia and a Critical Review of the Treatment of the Disease.

Gustav Zinke (*Amer. Journ. of Obstet.*, Feb. 1911) analyses ninety cases, the last twenty-six of which he treated with veratrum viride in conjunction with the moderate use of hot baths, hot packs, strict milk diet, and free but not exhaustive catharsis. In every case, no matter how many convulsions the patient had had, twenty drops of Norwood's tincture of veratrum viride were given hypodermically and repeated every hour until the patient's pulse was reduced to 60 per minute. When the pulse showed a tendency to rise again, another dose of from ten to fifteen drops was administered and repeated every hour until the pulse was again down to, or below 60. So long as the pulse remained at 60, or a little less the veratrum viride was withheld, but as soon as the number of beats increased, another dose of from 10 to 15 drops was promptly given, occasionally by the mouth but usually under the skin.

Of the twenty-six cases so treated only four mothers were lost (15·38 per cent.); of the twenty-six children fourteen were lost (53·88 per cent.). As compared with the first sixty-four cases, which were not treated with veratrum viride, the maternal mortality was 34·47 per cent. and the fœtal mortality 45 per cent. S. J. A.

The Mammary Theory of the Origin of Eclampsia Poison.

Hugo Sellheim (*Zentralb. f. Gyn.*, 1910, No. 50) considers that the poison of eclampsia originates in the breast and not in the placenta. Against the theory of placental origin is its occurrence late in pregnancy and not when the placenta first commences to functionate, also its occasional occurrence after parturition: on the other hand it always occurs at the time the breast commences to functionate or when it increases its function immediately after parturition. Several antagonistic bodies may be produced in the breast and eclampsia may be caused by the suppression of

some of these, so allowing the others to act unchecked: for this reason "breast gland extract" should be tried in eclampsia. He supports his arguments by two cases, in both of which fits commenced some time after parturition. The first case recovered after injecting potassium iodide solution into the breast, the other after removing all the breast tissue. He considers enucleation of all the breast tissue less severe than rapid deliverance or kidney decapsulation and, at the same time, more efficient.

W. F. S.

Eclampsia and the Wassermann Reaction.

Semon (*Zeitschr. f. Geb. und Gyn.*, Bd. lxvii, Hft. 3) reports his observations on 20 cases in Winter's clinic at Königsberg. Attention was first drawn to the point in 1909 by Gross and Bunzel who recorded that they obtained positive results in five cases of eclampsia at the height of the disease only, not at the beginning nor at the end. In addition to these Nadory recorded three positive results. On the other hand Alsberg, Thomsen, and Heynemann recorded twenty-one negative observations. Semon criticises the methods and results of these observers and then describes his own. Of his twenty cases thirteen were severe, six slight eclampsia, and one a case of functional amaurosis post partum. All were examined during the height of the disease. He got a positive reaction in three of the severe cases, and in all the others the results were negative. One of the cases giving a positive result was a very severe case, which proved fatal after more than a hundred fits; all the time the urine in this case never showed more than the merest trace of albumin. R. W. J.

Status Epilepticus and Pregnancy.

E. Sachs (*Monats. f. Geb. ü. Gyn.*, Bd. xxxii, Ht. 6, S. 649). In a lengthy and interesting article Sachs points out, with illustrative cases, that some difficulty exists in distinguishing cases of eclampsia from status epilepticus, a matter of considerable importance seeing that the treatment as well as the prognosis is totally different in the two conditions. With regard to differential diagnosis it must be remembered that cases of eclampsia have been observed where there has been no evidence of albuminuria; such cases have been considered by Zweifel to be epileptic or hysterical where recovery has occurred, but in not a few cases a fatal issue has made such a diagnosis at least dubious.

The treatment of eclampsia often resolves itself into premature delivery with varying results according to the severity of the toxæmia; still, many lives have been saved by prompt interference and rapid delivery. The case is absolutely otherwise in epileptic seizures of extreme gravity such as are found in status epilepticus. Sachs has carefully searched the available literature and finds that any interference with the pregnancy has not only no beneficial effect on the mother but is fraught with grave danger. He states that the cerebral cortex in such cases is extraordinarily excitable and the birth act whether natural or artificially excited and hastened makes the condition of the cortex very much worse and leads directly to exhaustion and death of the mother. He counsels rather that all ordinary therapeutic measures with the object of controlling the attacks should be exhausted before artificial delivery is attempted, in fact that the last moment should be waited for while the child is still living and then Cæsarean section adopted with the view of saving the child, seeing that the mother is beyond all help.

Sachs lays stress on the system of treatment laid down by Alt. Absolute rest for the patient in a darkened room with avoidance of all noise. If immediate danger is not anticipated a large enema is given and the result awaited. If the attacks do not pass off bromide, chloralhydrate or amylenhydrate are administered per rectum to avoid the risk of inhalation pneumonia, and chloroform may be cautiously used. Sachs desires that every case of the condition should be reported as our information with regard to it is still fragmentary. W. R. P.

A Note on the Ætiological Influence of Pregnancy upon Molluscum Fibrosum.

Barton C. Hirst (*Amer. Journ. of Obstet.*, Feb. 1911) describes the following case. A woman, aged 38, vii-para in the sixth month of pregnancy, had growths scattered over chest, abdomen, back and arms. At the age of eighteen four or five typical growths of molluscum fibrosum appeared on the anterior surface of the body, but did not increase in number. The woman married at twenty-five and became pregnant at twenty-six years of age. During the first pregnancy the growths increased rapidly in number. After delivery the numerical augmentation ceased, but the growths already developed remained. In each successive pregnancy, including the last, which was the seventh, there was an increase in the number of the growths but no such increase in the intervals between the pregnancies. S. J. A.

Investigation of the Causes of Onset of Labour.

Sauerbruch and Heyde (*Muench. med. Woch.*, No. 50, S. 2617). It was found that when one of the conjoined Bohemian twin sisters Blatscheck became pregnant the breasts of the other sister also progressively enlarged with the pregnancy. Other signs of pregnancy, such as pigmentation of the skin, similarly occurred in both sisters.

One is driven to conclude that some special stuff is formed in the system during pregnancy which when carried over into the second person evokes the same developments as in the pregnant partner.

The question now is to find whether the onset of labour may not be due to similar products of tissue metabolism. Experiments on rats which had been united by the abdominal cavities gave some striking results. In two cases fourteen days passed after the union before labour set in, in five cases a week elapsed. In no case was there any trouble until just before labour in either rat. But about 6 hours before labour set in (judged by blood-stained discharge from the pregnant rat) the conjoined rat (male or female) became very ill. First there was peculiar lassitude which gradually increased until the animal was incapable of movement. The eyes became small, the hair bristly and sometimes the fæces and urine escaped. There was no appetite and no reaction to external stimulation. Often convulsions ensued like those seen in tetany and experimental uræmia. The animals which were most affected generally died during the labour, but those which had been united longest to the pregnant rat (14 days) suffered least and did not die. The pregnant rat was in no way affected by the illness of its parabiotic partner. No macroscopic changes could be found in the dead rats.

Two rats at different stages of pregnancy were then united and it was found that the rat not so advanced in pregnancy was not affected before labour, and sometimes not in the labour of its partner, but one or two were affected during labour and miscarried. All were quite well after the labours.

Some have attributed the death of the parabiotic partner during labour to the marked depression in abdominal pressure against which the pregnant partner is safeguarded. However, neither the time of occurrence nor the character of the convulsions agrees with this hypothesis. The whole condition is more like an intoxication. The fact of the mother rat remaining free and well is the most convincing argument and this is strengthened by the fact that the longer the parabiosis has existed the less does the non-pregnant partner suffer.

All the facts point to poison bodies and immunisation by antibodies. These poison bodies are formed in increasing extent at and before labour. There is a kind of relationship to the toxæmias of pregnancy in all this. Starling found that some non-toxic bodies which he called hormones led to the development of the breasts but such bodies would not account for the poisonous effects upon the partner.

Experiments have been published upon the anaphylaxis produced by fœtal blood serum, and others showing that eclampsia is due to entry of unaltered fœtal albumen into the maternal vessels. Weichardt has worked upon similar toxic conditions caused by syncytial albumen.

Possibly uncontrollable vomiting, which occurs usually in primiparæ, is caused by fœtal products to which the mother is not immune. Whatever these bodies may be, it is not likely that the same bodies act upon the breasts gradually and continuously and when accumulated lead to labour. It is more likely that the spasm-provoking bodies are specially liberated when the ovum is ripe and the decidual cellular tissues are undergoing solution. F. E.

Cæsarean Section by the Small Median Incision above the Umbilicus.

Asa B. Davis (*Amer. Journ. Obstet.*, December 1910), in a lengthy paper on Cæsarean section describes the technique of an operation devised by him. The abdomen is opened by a median incision 8 to 10 cm. long from above down to the umbilicus. One or two gauze pads wet in warm salt solution are placed in the abdomen above the fundus to hold back the omentum and intestines. An assistant makes pressure with the hands outside the abdomen against the sides of the uterus rotating it so that its anterior surface presents and is held well up against the abdominal opening (this pressure is continued until the uterus is emptied and at least partly closed by sutures). The uterus is then carefully opened by successive strokes of the scalpel down to the membranes, with a median incision from just below the fundus down to the anterior surface and a little longer than the abdominal opening.

The hand is passed into the uterus and swept between the membranes and the uterine wall, or if the placenta presents, it is either torn through or pushed aside. As the hand is withdrawn the anterior thigh is grasped and the breech retracted, doing podalic version if the breech presents below. An assistant clamps the cord in two places, it is cut and the child preferably taken from the room to be resuscitated.

A bullet forceps grasps the uterine wall at the upper and lower angles of the wound. The placenta and membranes are extracted and the uterus cleared of clots. No attempt is made to dilate the cervix from above, and no gauze drain is passed down through it. The uterus is then closed by six or eight deep interrupted sutures of No. 2 chromic gut, and these are buried by a continuous suture of the same material in the form of a rather deep Lembert stitch. The abdominal pads are removed; no attempt is made to cleanse the abdominal cavity and sponging and handling the uterus are avoided as much as possible. The uterus rapidly assumes the size and position of that organ after normal delivery. The abdomen is closed in three layers. A small gauze dressing is applied over the abdominal wound and held in place by tight adhesive straps across the wound. An ordinary abdominal binder is pinned tight across the wound and loose elsewhere. The patient is placed in bed, the head of which is well raised to favour drainage and descent of the uterus towards the pelvis.

The author has performed the operation seventy-five times, and in no instance has the uterus been removed from the abdomen.

He concludes his paper by remarking that the incision should be long enough to allow easy delivery of the child. The small high incision does not allow easy exposure or escape of the abdominal contents. The wound is away from the site of greatest strain upon the abdominal wall, at a point reinforced by the recti muscles as they approach each other towards their upper attachments. The wound is small and he has never seen hernia following it. The liability to adhesion between the abdominal wound and the uterine wound is much diminished. S.J. A.

The Uterine Cicatrix in the classical and the cervical Cæsarean operations in regard to subsequent Pregnancy and Labour.

SCHEFFZEK (*Zeitschr. f. Geb. und Gyn.*, Bd. lxvii, Hft. 3) discusses the possibilities of spontaneous rupture either during pregnancy or during labour of the Cæsarean cicatrix in the uterus. Olshausen had only one case in two hundred sections. Couvelaire regards it as occurring in two per cent. of cases. Werth in 1905 collected eleven cases. Franz and Nacke have reported cases of rupture after fundal incisions and later Baisch and Mayer have reported cases. The author, writing from Baumm's clinic in Breslau, records two cases that occurred there. One was a spontaneous rupture in the second pregnancy after a fundal section. The other, which is recorded in detail, occurred in a tedious labour three years after an ordinary section.

The risk of subsequent rupture has led some authorities to advocate either induction of abortion in subsequent pregnancies or sterilization at the time of operation.

The author discusses the impossibility of keeping the incision in the body of the uterus at rest. The after pains may be sufficient completely to loosen catgut sutures, and a strong scar, such as follows suture of a muscle, subsequently immobilised, is not to be expected. The lower uterine segment is not exposed to these drawbacks in the puerperium, and theoretically a stronger scar should be the result.

Ten cases are recorded in which pregnancy supervened subsequent to an extra-peritoneal cervical section. In five the operation was repeated: in four premature labour was induced. In all the scar held out successfully, even in one case where it was exposed to intermittent pains for a period of sixty-eight hours! R. W. J.

Uterine Rupture Through the Scar of Cæsarean Section.

JEANNIN and WILHELM (*Bulletin de la Société d'Obstétrique de Paris*, etc., No. 8, November 1910). A uterus was exhibited by these authors at the Obstetrical Society of Paris, showing a large rupture on the anterior wall, corresponding very exactly with the scar of a Cæsarean section performed 11 months previously for contracted pelvis.

The patient was admitted in labour to Lariboisière's Clinic. The child was dead, and whilst preparations were in progress to perform craniotomy it was found that the uterus had ruptured. Laparotomy was performed and the fœtus and placenta extracted from the peritoneal cavity. The uterus was removed, and the woman made an uneventful recovery.

The authors remark on the absence of any etiological factors usually invoked to explain the rupture in such cases, *e.g.*, incomplete uterine suture, sepsis, a thin cicatrix, or over-distension of the uterus. The suturing at the Cæsarean section had been of the 'through and through' type and reindeer tendon was the material employed. The full report of this case will appear in *L'Obstétrique*.

B. W.

Report of Ten Cases of Supra-symphyseal Cæsarean Section.

J. C. REINHARDT (*Gynækologische Rundschau*, Jahrg. iv, Heft 24). The author reports an experience of suprasymphyseal Cæsarean section carried out 10 times in 9 women. He adopts this method where, classical Cæsarean section being contra-indicated by the possible existence of infection, a living child is desired. In one case it was carried out for the delivery of a dead child where there was a marked osteomalacic contraction.

He has done the operation 6 times by the transperitoneal route, and 5 times extraperitoneally. He refers to the difficulties of the extraperitoneal method. In some cases the loosening of the peritoneum from the summit of the bladder is

difficult. In some cases, even in a long-standing labour, the lower edge of the peritoneum may be deep in the pelvis. So marked are the difficulties that, in three cases out of the 4 extraperitoneal operations, the peritoneum was injured. He advocates drainage as a routine both in the extraperitoneal and in the transperitoneal methods. J. Y.

Vaginal Cæsarean Section for Artificial Abortion.

G. KLEIN (*Monats. f. Geb u Gyn.*, 1911, Bd. xxxiii, H. 2, S. 145).—The usual methods of inducing premature labour are rapid dilatation of the cervix with curetting or manual removal of the ovum, or the use of tents, usually of Laminaria, with subsequent introduction of gauze or indiarubber bag, which means as a general rule that two or three days are required before the ovum is spontaneously ejected, or the conditions are such as to permit of manual removal, and the patient may show fever. Usually this is due to sapræmia, although severe sepsis with actual loss of life may occur. Such cases usually occur in patients treated in their own homes, where assistance is insufficient and asepsis practically unattainable.

The writer states as an axiom that the induction of premature labour should be carried out in hospital, not in the home. Vaginal Cæsarean section can be done rapidly, the whole operation need not occupy more than 15 to 20 minutes. Post operative hæmorrhage from an atonic condition of the parts is not serious, and can be successfully treated by massage of the uterus, ergotin, and packing. Klein found that by ordinary methods so many more or less serious complications were apt to occur that he was driven to this operation to which he applies the name given, seeing that "vaginal hysterotomy" does not emphasize the reason for the procedure, viz., the removal of the ovum. He does not recommend the method in cases occurring in the first six weeks of pregnancy where rapid dilatation and curetting suffice. In septic abortion the vaginal method is the most rapid, but hysterectomy may be subsequently required in such circumstances. The incision in the anterior wall of the cervix may be extended beyond the internal os in order to reach and remove the ovum, but the anterior reflection of the peritoneum is not injured. The main points in favour of the method are the rapidity with which it can be carried out and the greatly lessened risk of sepsis; but it should be carried out by skilled operators under the best conditions and therefore not in the patient's home. W. R. P.

Effect of Hebosteotomy on Succeeding Labours.

W. SCHAUENSTEIN (*Gynækologische Rundschau*, Jahr. iv, Heft. 24). The author reports 4 cases in which he had the opportunity of noting the effect of hebosteotomy on the bony pelvis, especially in its relation to the ease of subsequent delivery. In 3 the succeeding labours were spontaneous; in one only was a repeated hebosteotomy required. In the first case the union of the divided bone was osseous. There had, however, been an appreciable increase in the pelvic diameters by the interposition of callus, and the next child was delivered spontaneously. In the second and third cases the union was by connective tissue. Here there was a separation of the edges at the next labour and, in each case, the delivery was spontaneous. In the fourth the union was by dense connective tissue and hebosteotomy was necessary. The author refers to the difficulty of drawing deductions from a small number of cases, because in two of the above (2 and 4) the subsequent children were smaller than before, whilst in the other two they were markedly increased in weight.

To define the extent of this possible error he has collected 70 cases from the literature. Out of these, in 49 the succeeding labour was spontaneous, in 16 delivery was effected after hebosteotomy, and in 5 by Cæsarean section. In 27 cases the union was by connective tissue, in 15 it was bony, in 8 there was no definite statement.

The conclusions which the author draws are as follow. The number of spon-

taneous births succeeding a delivery after hebosteotomy is greater, in proportion to those requiring operative measures, the smaller the child, the less marked the original pelvic contraction, and the more yielding the union between the divided bony edges.

J. Y.

Black Colostrum.

MERLETTI (*Annali di Ostetricia*, January 1911) relates two cases of secretion of colostrum, inky-black in colour, in the breasts of two pregnant women near term. One woman was a primipara, the other a secundipara. Under the microscope fine amorphous granules were seen imparting their colour to the colostrum. As both cases advanced nearer term, the colour changed to red-brown, then to clear red, and disappeared completely a week or two after delivery. Lactation was disturbed in no way. Bacteriologic culture did not show the presence of special chromogenic germs. It would be interesting to ascertain if the pigment in question was of the nature of melanin. It was almost certainly hæmatic in origin. The recognition of such cases is useful because the phenomenon might lead to a mistaken diagnosis of malignant disease of the breast, as happened to Litasser who, in discussing an analogous case, proposed extirpation of the mammary glands, fearing existence of neoplastic growths.

J. H. F.

Parotitis in Childbed.

I. FISHER (*Zentralblatt. f. Gyn.*, 1910, No. 49) describes a case of left sided parotitis occurring the day following delivery in a young healthy primipara. She was naturally delivered after 18 hours labour, chloroform being administered very lightly for 8 minutes as the head passed the perinæum. The swelling settled down completely with mouth washes in seven days. He considers it is probably due to trauma occasioned by the patient screaming so violently and not to septic absorption or to the effect of the chloroform which was administered for so short a time.

W. F. S.

Tuberculosis of the Placenta.

NOVAK and RANZEL (*Zeitschr. f. Geb. und Gyn.*, Bd. lxvii, Hft. 3) have investigated the placenta in ten cases of labour in advanced pulmonary tuberculosis. The placenta was finely minced and washed, digested in soda solution with pancreatin and then mixed with a 40 per cent. "antiformin" solution. The sediment, after further washing in alcohol, etc., was stained and examined for the tubercle bacillus. Histological examination of the placenta was also carried out, as well as biological tests by injections into guinea-pigs.

The writers agree largely with the early findings of Schmorl, who described four forms. The first is tuberculosis in the intervillous spaces, which is the most common variety, the villi themselves developing a secondary tuberculosis. Schmorl's second form was primary villous tuberculosis. This the writers think is probably produced by the bacilli growing in the thrombi which form round necrosed villous epithelium and passing thence into the stroma of the villi. Thirdly, we have tuberculosis of the decidua serotina which probably is secondary to the first form—the intervillous space infection. Lastly, there may be tuberculosis of the chorionic membrane—as a spread from the first or second forms.

The authors found positive evidence of tuberculosis—presence of bacilli, histological changes and positive biological results—in seven cases out of ten. They regard many of the negative findings of other writers, Bossi and Ascoli for example, as due to faulty methods, or to the pregnancies having been terminated early by abortion, in which cases any infection present usually shows itself in the decidua only.

The writers are of opinion that their findings strongly support the theory that the passage of tubercle bacilli through the placenta into the fœtus must be more common

than is usually admitted, and it is to be hoped that further observations with the improved "antiformin" methods will lead to definite knowledge on this important point.

A useful bibliography is appended. R. W. J.

Amylogenic and Amylolytic Functions of the Placenta.

Delle Chiage (*Ann. de Gyn. et d'Obstét.*, Feb. 1911) discusses this subject, and gives the result of his own experimental work. Ballerini, in 1907, thought that the cells of the villi had a glycogenic function, Opocher and Moscati confirmed this result. A year later Ballerini denied all special placental activity and looked on the epitheium of the villi only as a semi-permeable membrane. Delle Chiage criticizes the technique of some of the former workers. His research has been done on dogs some time before full term, as he thinks that any placental activity is certain to have come to an end as the time of delivery is approached. The animals were given a known quantity of bread and part of the placenta removed by Cæsarean section after a fixed interval had elapsed from the feeding. Two small pieces of liver were also removed. The abdomen was then closed, glucose injected subcutaneously, and two hours later the abdomen reopened, pieces of another placenta and portions of liver again removed. His results are shortly as follow :—

1. Injection of glucose results in an increase of glycogen in the placenta and fœtal liver.

2. After a long interval from the time of injection a larger amount is found in the fœtal liver and less in the placenta.

3. The placenta probably has an amylogenic and amylolytic function. C. W.

The Influence of Syphilis on Fœtal Mortality.

Tissier (*Bulletin de la Société d'Obstétrique de Paris*, etc., No. 8, November 1910). In the discussion following a paper by Boissard on the conduct of cases of pregnancy in which the fœtus is macerated, Tissier gives the following figures showing the influence of syphilis in causing fœtal death :—

1. In 24 women who gave birth to macerated fœtuses, spirochetes were demonstrated 19 times in the children.

2. In 32 women obviously syphilitic, who produced dead children, research confirmed the diagnosis in 28 instances.

3. In 21 suspected cases, syphilis was definitely proved in 14 of the children.

4. In 78 apparently healthy women syphilis was established 38 times by examination of the fœtal viscera.

Thus, in a total of 155 cases, syphilis was the etiological factor in 99, i.e., about two-thirds of the number.

Boissard's figures are even higher. In his own practice at St. Louis he finds that 95 per cent. of all macerated fœtuses are syphilitic. B. W.

A Case of Male External Pseudo-hermaphroditism.

Gayet and Jalifier (*Revue de Gyn.*, December 1910) give an account of an interesting case. The patient was aged 57 and was admitted to hospital as a case of acute appendicitis. "She" had been ill for 16 days with abdominal pain and vomiting.

On admission the state of the patient was shortly as follows. The external appearance was that of an elderly woman well covered by subcutaneous fat. The hair on the head was long but the pubic hair was poorly developed. The breasts were well formed but the nipples were small. The thighs and limb bones were well developed. The muscles were feeble and the voice high pitched. The vulva was in every way normal and no hypertrophy of the clitoris or labia majora was present, the

urethra was in the vestibule rather far forward. No remains of the hymen could be distinguished. The vagina was only 3 centimetres long and ended blindly—no cervix, uterus or ovaries being felt. In the left inguinal region was a small, painless tumour as large as a nut. In the right iliac fossa was a hard mass as large as two fists. The right inguinal region was empty.

The operator started by removing the mass in the left inguinal region—it was a typical testis with tunica vaginalis and gubernaculum. What was thought at first to be the appendix abscess was found to be an isolated pocket of pus not in the peritoneal cavity—no traces of testicular substance were found in it but the authors consider the abscess to have originated from gangrene of the ectopic testis on the right side. Examination of the mass removed from the left groin showed structures like those usually met with in an ectopic testis, the corpus Highmorii was represented by a fibrous nodule—no excretory ducts were present. The patient did well and further details of her previous history are of interest. She had never menstruated or had any of the symptoms which occur when menstruation is suppressed in a normal person. She had been married 17 years and coitus had been frequent. The patient was in a feeble mental state and the presence of normal sexual feeling could not be proved. "She" had a "sister" aged 55 who had never menstruated and who had been told by a gynæcologist that she could never have children. The "sister" refused to submit to examination.

The authors have been unable to find any case of suppurative orchitis in a hermaphrodite previously reported. C. W.

The Genesis of Rickets.

Vaglio (*Annali di Ostetricia*, November 1910) relates that he happened to remove the thyroids from 3 rabbits in the course of another experiment, and that some days later the animals were seized with a disease for which there seemed no apparent cause and which had the clinical features of an obstinate diarrhœa. The rabbits were put in a cage with another rabbit of the same species and weight. Soon the fourth rabbit was infected and the disease continued in all, the animals growing smaller and weaker, with swollen abdomens and loss of power in their limbs. At the end of 2 months they were killed and examined. Attention was specially directed to the bones, which were much thinner and shorter than those of the controls. At certain points there was over-development of bony substance. The ribs showed slight swellings at their junction with the costal cartilage. On microscopic examination the bones were seen to present characteristics of the first stage (medullisation) of rickets.

However one may wish to explain the origin and process of ossification, it is clear that lack or diminution in the circulation of thyroid products disturbs the normal development of ossification and produces an elimination of calcium. To this may be due the origin of these conditions which hinder the osteoblasts from responding to the abnormal stimulation of an infective process, by the intensified production of true bony substance. Such a condition of thyroid insufficiency pre-exists, as observations prove, in the children who fall victims to rickets. J. H. F.

Thèses.

Flooding of the Peritoneum in Tubal Abortion without a Rupture.

R. Willette, Paris (review *La Gynécologie*, November 1910; also *L'Obstétrique*, December 1910).

The Fight against Cancer, especially of the Uterus.

R. Larouche, Lyons (review *La Gynécologie*, November 1910).

Gravid Retroversion.

Mlle. Raichstein, Paris (Jouve, Publisher; abstracted *L'Obstétrique*, December 1910).

Treatment of Prolapse of the Cord, not by Cæsarean Section.

Gabory, Paris (Roussel, publisher; *L'Obstétrique*, December 1910).

Determination of the Food Allowance of the Infant by estimation of the Fœtal Surface.

Gargae, Paris (Jouve; *L'Obstétrique*, December 1910).

The Abdominal Wall in Labour and Puerperium.

Chamard, Paris (Roussel; *L'Obstétrique*, December 1910).

The After History during Pregnancy of Women who have suffered Nephrectomy.

Bleynie, Paris (Chacornac; *Obstet.*, December 1910).

Increase in the Number of Abortions.

Colligron, Paris (Jouve).

Late Marriage in its Medical Aspect.

Le Hir, Paris (Ollier-Henry; *L'Obstétrique*, December 1910).

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Obstetric and Gynæcological Section.

Ordinary Meeting held Thursday, March 2nd, 1911, The President, Dr. MacNaughton-Jones, *in the Chair.*

The following specimens were exhibited :—

Dr. Eardley Holland : Sarcoma of the uterus.

Dr. Maxwell : Ovarian embryoma containing thyroid gland tissue.

The President showed an interesting specimen consisting of a large retort-shaped hydrosalpinx and a cystic ovary, with a peritoneal cyst behind the mesosalpinx. On removal, the latter was found to be filled with a bright orange-coloured fluid; the ovarian cyst was a blood cyst, and the dilated ampullary end of the hydrosalpinx was adherent to the ovary.

He also showed a multi-lobular myoma of the uterus removed from a patient, æt. 45, who was extremely emaciated and anæmic from prolonged hæmorrhages. Clinically, the case was of interest, inasmuch as the operation was followed by attacks of phlebitis in both legs, the first occurring on the thirteenth day after operation in the left femoral region, and that in the right leg on the thirtieth day after operation. Great difficulty was experienced in delivering the tumour, which was fixed in the pelvic cavity. Suprapubic drainage, combined with proctoclysis, was continued for several days. The value of infundibulin (pituitary extract) was also shown in this case, when there was difficulty in moving the bowels. It was the only case of phlebitis of both legs which he had seen, and it exemplified the well-known risk of this complication in connection with bleeding fibroids.

The patient ultimately made a good recovery.

Dr. Amand Routh thought there were two, if not three, varieties of post-operative phlebitis. One form occurs within two or three days of the operation, and is due to the loss of blood which had preceded the operation. This variety causes little or no pyrexia.

The other variety comes on at the end of the second or third week after operation, is sometimes ushered in by a rigor, as in true phlegmasia dolens, where the lymphatics are mainly involved, and is probably either the result of infection from a germ with a long incubation period, or due to an accumulated toxæmia. Very few of these cases of femoral phlebitis have any preceding pelvic induration.

Mr. Alban Doran referred to a case of severe anæmia from prolonged hæmorrhages, due to a small fibroid. On the thirty-eighth day after hysterectomy she had an acute attack of phlebitis, first in the right leg, then on the left side, and she died on the forty-second day.

Dr. Giles had recently met with a rare complication of hysterectomy for fibroids. Ten days after operation gangrene appeared in one foot and a few days later in the opposite foot. It extended some distance up both legs, but eventually a line of demarcation appeared.

Dr. Blair Bell read a short communication on "Primary Abdominal Pregnancy in a Rabbit," of which the following is an abstract :—

A brief account was given of the literature of primary abdominal gestation in woman and in the lower animals. It was pointed out that while secondary abdominal pregnancy, following rupture of the cornua, was fairly common in hares and rabbits, primary abdominal implantation had not previously been described.

Owing to the frequency with which tubal or ovarian abortion or cornual rupture with secondary abdominal implantation had occurred without macroscopical evidence being obtained, it was insisted that no case could be accepted unless serial sections of the ovaries, tubes (and, in animals, of the uterine cornua) were made, however great the other evidence might be.

In the case recorded in this paper of primary abdominal pregnancy in a rabbit, four full-term fœtuses were found in a tumour attached to the gastro-colic omentum. The specimen was shown, together with skiagrams of the specimen and of the young rabbits at birth.

Serial sections had been made of the ovaries, tubes and uterine cornua, and no trace of the laceration could be found, nor was there any evidence of a recent intrauterine pregnancy. Seven corpora lutea of the same age, and considered to correspond with the date of the abdominal pregnancy, were found, and shown in photomicrographs.

The number of corpora lutea rather indicated coincidental intrauterine pregnancy, for it was usual to find that the number of corpora lutea corresponded with the number of fœtuses; but, of course, after several months no histological evidence would be obtainable of changes in the uterus due to previous pregnancy.

Dr. Amand Routh said that Dr. Pembrey had shown in 1898 a somewhat similar specimen from a rabbit, but had subsequently (1904), with Dr. Bellingham Smith, read a short paper on the same case, showing that after all it had not been a case of ectopic gestation but of ruptured uterus. Mr. Bland-Sutton had stated that there was no evidence of the occurrence of tubal pregnancy in the lower animals (except in one doubtful case in a baboon), and he believed that all the recorded cases were subsequent to rupture of the uterus.

Dr. Blair Bell also read a paper on "The Nature of the Fluid contained in a Hæmatocolpos." The histories of two cases of hæmatocolpos in girls of 18 and 15 years of age were recorded. In both there was a large fluctuating tumour reaching above the umbilicus, on the top of which was riding the undistended uterus. He thought hæmatometra was a very unusual and late complication of hæmatocolpos. In a third case (under the care of Dr. T. W. Eden) the fluid and obstructing membrane were examined.

The obstructing membrane in the first case was bulging through the orifice of the hymen, which was stretched round the edge. In the second case strands of hymen were stretched over the bulging membrane, and histological examination of this structure showed the outer surface to be covered with squamous epithelium, while the inner was lined with both squamous and columnar epithelium with many glands opening into the vagina. The columnar epithelium appeared in places to be changing into squamous epithelium.

The interest of these findings may be grouped under the following heads :—

(1) The obstructing membrane is not often an imperforate hymen, but the lower end of an imperforate vagina; (2) the vagina is derived in part, or entirely, from the Müllerian ducts, hence the glands and columnar epithelium.

In the third case (Dr. Eden's) an histological examination of the obstructing membrane showed that there was squamous epithelium on both sides. This alone is not proof that it was an imperforate hymen. The epithelium was a good deal thicker on one side (? outside) than on the other.

A bacteriological examination of the chocolate-coloured fluid collected from the second and third cases showed it to be sterile. A full chemical examination of the fluid from the second and third cases gave the following results :—

(a) It contained a very large proportion of mucin. (b) The pigment is mostly hæmoglobin, with a little methæmoglobin. (c) There is 90 per cent. of water and 10 per cent. of solids. (d) the nitrogen present amounts to 1·43 per cent., which is equivalent to 9 per cent. protein. (e) Lactic acid is present in large quantities. (f) The calcium content is double that of normal blood. (g) Neither fibrin ferment nor fibrinogen could be detected.

Special attention was called to the points under the last three headings.

The presence of lactic acid in the absence of bacteria was interesting, and disproved the views advanced by Döderlein.

The calcium content was very high when it is remembered that the greater proportion (about 80 per cent.) of the secretions was mucin. Consequently in the menstrual discharge it is very much higher than in normal systemic blood, as the writer has previously pointed out.

The absence of fibrin ferment and fibrinogen is of the greatest interest, for it is the reason why menstrual blood does not clot normally. The endometrium probably effects this result.

Further work on this subject in regard to normal and pathological menstruation will be published later.

Miss McIlroy read a paper on "The Origin of the Follicle Cells of the Ovary," which was illustrated by many lantern slides and photographs.

The meeting then adjourned.

NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.

The February Meeting of this Society was held at the Medical Institute, Liverpool, on the 17th inst., the President, Dr. Hellier, in the Chair.

Dr. Briggs (Liverpool) showed several obstetrical Mannikins which he claimed rendered the teaching of operative midwifery both easier and more satisfactory.

Dr. Hellier (Leeds) showed an intra-mural myoma removed from the abdominal wall from a woman aged 25 in her second pregnancy. The tumour had grown with great rapidity and showed some signs of degeneration. The patient had done well and had not miscarried.

Dr. Gemmell (Liverpool) showed specimens,

(a) Of an ovarian abscess simulating a fibroid which had been noticed during a pregnancy some seven months before the operation. In the course of separating adhesions during the operation, the abscess, which appeared to be intimately connected with the uterus and as large as a five months' pregnancy, was ruptured and so panhysterectomy was performed. It was only on subsequent dissection that the tumour was found to be ovarian in origin; and,

(b) A specimen showing multiple fibroid of the uterus in one of which red degeneration had taken place. The operation (sub-total hysterectomy) was undertaken on account of severe hæmorrhage.

Dr. Grimsdale (Liverpool) described a case of persistent metrorrhogia in a woman of 35. The patient had been curetted on two occasions but with only very temporary relief, so after consultation, the uterus and one ovary in which there was a blood-cyst, were removed.

The Use of the Word "Endometritis."

Dr. W. E. Fothergill (Manchester) read a short paper with the object of ascertaining the feeling of the Society as to what should and what should not be called

"endometritis." If some decision could be arrived at on this point the accurate use of other words like "metritis" and "ovaritis" would naturally follow.

The term "acute septic endometritis" suitably named the inflammatory reaction on the part of the endometrium to septic infection after parturition and abortion. This might perhaps be followed occasionally by a prolonged infective state which might be called "chronic septic endometritis." Some authorities doubted this. No one would deny that a chronic septic inflammation could occur when the condition of the endometrium was altered by various circumstances such as the presence of foreign bodies and new growths. In advanced life, also, when the resistance of the tissues was lowered by retrogressive changes, an inflammatory process certainly occurred which might well be called "senile septic endometritis."

Gonorrhœal endometritis, acute and chronic, was admitted by all as correctly named. Tubercular endometritis was not unknown, and doubtless inflammation of the endometrium was occasionally set up by special organisms of other diseases.

The conditions mentioned above were all pathological processes occurring in the course of infective disease of the pelvic organs.

But the word "endometritis" was constantly used as a name for clinical conditions which presented no history, symptom or physical sign of inflammation, and which were not caused by any irritant, infective or other. Thus, for example, pelvic congestion, hyperplasia of the endometrium, subinvolution, the menorrhagia of puberty, and the menorrhagia of the menopause were frequently named "endometritis."

In a recent book for students, under the heading "Inflammation of the Cervix and Uterus," sub-heading "Endometritis," one read "Chronic Endometritis is in most cases not of the nature of an inflammation at all." Then why did the author continue to include these "most cases" under the heading "inflammation" and why did he go on calling them "endometritis"? If the termination —itis meant anything at all it meant inflammation; and, for practical gynæcologists, inflammation meant infection. It is therefore suggested that the teaching of gynæcology would gain a lucidity and accuracy if the use of words ending in —itis were confined to cases in which there was clinical evidence in the form of history, symptoms, or signs, that infection had played a part in the causation of the condition present.

Again, it was questioned if the use of these words was desirable at all as the names of diseases or clinical entities. Should they not be used strictly as names for pathological processes? Was it possible, for instance, to recognise endometritis, metritis, ovaritis, salpingitis, cellulitis and peritonitis as separate diseases? Who had ever seen a case of primary ovaritis? But who had not heard "ovaritis" used as the diagnosis of a disease on innumerable occasions?

It was therefore further suggested that the teaching of gynæcology would gain if the use of words ending in —itis were confined to naming local pathological processes (inflammations) which occurred in the course of infective pelvic diseases, and were never employed clinically, as if they were the names of diseases with separate and independent existence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.
SECTION OF OBSTETRICS.

Meeting held Friday, February 17, 1911, The President, Dr. H. JELLETT, *in the Chair.*

ADENO-CARCINOMA OF THE CERVIX (WERTHEIM).

The President showed a case of "Adeno-carcinoma of the Cervix." The specimen was taken from a middle-aged woman. The cervical ring was practically complete all round. On passing a curette into the cervical cavity fragments were taken away,

but it was not until the cervix had been divided up that a specimen could be got for microscopical examination. It was a case of adeno-carcinoma of the cervix which simulated a case of cervical myomoa occurring in the same situation. There was nothing in the abdomen to be felt, and the diagnosis had to be made by splitting the cervix high up. The operation was a very extensive one. On opening the abdomen the ovaries were found to be affected. The growth extended very far out to the sides of the pelvis. The ureters were dissected out of a mass of cancerous tissue. It was a case in which recurrence would be expected very soon. The patient left hospital a short time after the operation. About two months afterwards she returned to the extern department complaining of pain in the region of the vulva, where a ring of infiltration was found. She was taken into the house and examined under an anæsthetic, and no sub-peritoneal extension could be felt. He removed a piece of tissue near the vulva, which tissue was found to be cancerous, the same as there was in the uterus. It was very satisfactory that there was no recurrence in the broad ligament. He took away about three-quarters of the remaining part of the vagina, and he thought the patient would be able to go out in a short time.

Secondary Abdominal Pregnancy, Fourth Month.

Dr. Gibbon FitzGibbon showed a case of "Secondary Abdominal Pregnancy" in the fourth month. The patient was sent to Mercer's Hospital for abdominal tumour. The history was a typical one of ectopic gestation. She was aged thirty-five, had two children, aged nine and seven and a half years. At the second confinement the child was very large, the presentation was a transverse one, and there was great difficulty in the delivery. Subsequently the patient evidently suffered from pelvic peritonitis or cellulitis. She had not been quite well for about five years after that, but the two years previous to her admission to hospital she had been in fair health As regards her present illness she menstruated some time during September. About the 20th November she was siezed with severe pain in her abdomen and fainted. A few days after that she had profuse and continuous hæmorrhage which lasted for ten days, and intermittent hæmorrhage for a fortnight more. She came into hospital on the 26th December, but nothing could then be done on account of the condition of her mouth. The tumour could be felt running from the left anterior superior spine to half way between the symphisis and the umbilicus. On making a vaginal examination he could make out the uterus in front, but owing to tenderness no bimanual examination could be made. On the 14th January he opened the abdomen. The whole pelvic region was matted together; the intestines were adherent to the left broad ligament, and also to the anterior abdominal wall. The adhesions were fairly easily broken down. He clamped across the tube between the tumour and the uterus, and cut down on the side of the uterus and shelled out the tumour. The placenta lay in front of the sac and ran up to the side of the uterus. Its blood supply came from five or six vessels in the angle between the base of the broad ligament and the uterus. On taking out the tumour there was nothing between the fœtus and the intestines except the fœtal membranes. The front of the sac was formed by the anterior layer of the broad ligament. There was some oozing low down behind the uterus, for which a gauze drain was inserted. Four days after the operation a typical lochial discharge commenced and went through the usual stages. The uterus at the time of operation was the size of a medium orange, and evidently contained a decidual formation, but no pieces were passed. The drain was taken out in forty-eight hours, and the patient made an uninterrupted recovery, and went out on the twenty-sixth day after the operation. On examining her before leaving the hospital the uterus was in front and mobile, and the thickening in the left side of the pelvis had cleared up almost completely.

Dr. Purefoy wanted to know why Dr. FitzGibbon had called it secondary abdominal gestation. He wanted to know whether he (Dr. FitzGibbon) had ever read of primary abdominal gestation. He would like to know with what structures the placenta was continuous, and on what structures the placenta had developed. There was a possibility of development of the decidua outside the cavity of the uterus.

The President said a case of primary abdominal pregnancy was recorded by Dr. Hurst. In this case the entire pregnancy structures were represented by a few layers of chorion.

Dr. FitzGibbon said the entire pregnancy was closed up in an apparently closed sac. All through the abdomen there were pieces of very old brown leathery-looking blood clot and distributed over the small intestine and high up in the abdomen. This showed there had been bleeding into the abdominal cavity. The placenta was formed between the sides of the uterus running up over the top of the specimen. The rest of the placenta seems to run over the top and front of the sac.

Diseased Placenta.

Dr. Spencer Sheill showed a diseased placenta. The patient was in her fourth pregnancy In the first pregnancy the child was within two months of the term, but was born dead. The second pregnancy was premature. The third went to term, but the child died of convulsions an hour after birth. In her fourth pregnancy he attended the patient, who was in her eighth month. The child was born dead. The placenta was small and thin. Two-thirds of it was hard and fatty-looking, and one-third was normal in appearance, and looked perfectly healthy to the naked eye. It showed recent "antepartum" hæmorrhages. The pathological report made by Dr. Boxwell was as follows :—"The placenta is small, thin, and fibrous. On section it shows white areas of necrosis. Hæmorrhages are numerous, and there is a remarkable fibrosis of the blood vessels leading to more or less complete obliteration over considerable areas. The villi are atrophied." He thought the diagnosis was probably syphilis, but syphilitic placentæ were said to be larger and paler. Under the miscroscope could be seen marked endarteritis and proliferation of the connective tissue. He considered the reason the placenta was small was that the syphilitic process had expended itself more on the blood vessels, whereas in large placentæ it may exercise inflammatory changes, and the connective tissue changes were more pronounced.

Dr. Tweedy said small placentæ in syphilis were not uncommon, and were usually found with a dead fœtus, while in the large placenta the fœtus is usually born alive, and Dr. Sheill's case was an example of this where the placenta was small and the fœtus dead.

Dr. Purefoy said a syphilitic placenta associated with a dead infant was smaller than normal. He was of opinion that in a syphilitic placenta the structural changes in the blood vessels were such as would enable one to diagnose the changes as syphilitic. He thought macroscopically he would be puzzled to say whether it was not a placenta structurally deformed as a result of kidney disease. Of course, the history leaves no doubt that the cause was syphilis.

Dr. Crofton said as regards diagnosis it could be cleared up by doing a Wassermann. If this was positive the patient had syphilis, and could be treated accord ingly.

Dr. Sheill said there was no evidence of kidney trouble either as regards tenderness, enlargement of the kidney, or presence of albumen. In reference to the statement that where the child is dead the placenta is small, he thought books did not agree with that statement. As to the changes in the blood vessels permitting of

diagnosis he thought there was an element of doubt. It was said that the microscope alone made the diagnosis whether the syphilis was paternal or maternal. Where it was confined to the villi it was paternal, but where it was confined to the stroma it was maternal.

Forty-six Cases of Extensive Abdominal Resection for Uterine Cancer.

Dr. Hastings Tweedy brought forward a series of forty-six cases of Wertheim's operation. His mortality was 19·5 per cent. This percentage was swelled by the inclusion of his early cases, in which the mortality worked out at 33 per cent. for his first year. He operated upon 90 per cent. of the cases seen by him, and advocated operation in advanced cancer, not in the hope of bringing about a cure, but to mitigate pain and distress. The surgeon who could count a large percentage of cures after a two-years' interval must have obtained them by selection of cases, and must, therefore, have consigned numbers of operable cancer patients to a hopeless outlook and a horrible death.

Professor Smith said that Wertheim did well when he followed the general surgeon's method in operating on the breast. He always felt that the removal of the glands was a great advance in the operation on the breast. The operability of cases must be considered. He said the anatomists had not given much information as regards the direction of the lymphatics. The surgery of the ureter was of extreme importance. In regard to the different methods of carrying out implantation of the ureter into the bladder he mentioned the one particular case where he had damaged the ureter. This case was not one of cancer of the uterus. He tried to implant the ureter into the bladder. The patient died, and he did not know whether it was due to improper implantation or not. The danger is, as Dr. Tweedy remarks, the retraction of the ureter, and the plexus which goes to nourish the ureter may be damaged in the manipulation. He mentioned Dr. Latzko's method. The operation was a very simple one. He makes a relatively big incision into the bladder, but he does not stitch the ureter to the bladder. He anchors the bladder to the stump of the suspensory ligament of the ovary. He draws the bladder well over to the side of the damaged ureter. He leaves the damaged ureter in the bladder, where he says it becomes adherent, and no trouble follows. He (the speaker) said there is often a difficulty in recognising the ureter, but on tapping the ureter one will often get the vermicular action quite plainly and distinct. He thought this one of the most important features in detecting it. In regard to the preliminary treatment of cancer of the cervix, he thought a bathing cap made of rubber was one of the finest methods he knew of. The cap is fitted on to the cervix and stitched there. This would prevent implantation of the cancer cells. In reference to the spread of peritonitis he did not think Dr. Tweedy's method could be improved upon for preventing it. Dr. Tweedy raised the point as to the justification of operating on cases which were considered inoperable. He (the speaker) mentioned a case which he had at present in hospital, and the patient told him she wanted no operation but preferred to die.

Dr. Purefoy said the number of cases open to operative treatment had been enormously extended by Wertheim's method. He said, providing the patient was willing, operation should be attempted on any case where the patient was likely to survive the shock thereof. We might console ourselves with the reflection that though the indurated tissue was no doubt often cancerous it was not invariably so. Glands enlarged and hard when removed have often been shown under the miscroscope to be free from cancerous tissue.

Sir William Smyly said that Wertheim's method is still the best, and it would be best for beginners at least to stick closely to the rules laid down by him in a

work just published founded upon an experience of five hundred operations. It appeared that his methods differ now very little from those advocated at the Belfast meeting of the British Medical Association five years ago. The cause of ureteral fistula appears to be still an unsolved riddle. Wertheim had varied his methods with the different theories as to causation, but seems to have had about the same number of fistulæ in each hundred cases. It was remarkable that Dr. Tweedy had only one case of fistula.

With regard to the preparation of the patient before operation, he read recently that it was unnecessary and only caused pain and hæmorrhage; but on thinking it over he thought it a great error to omit the preparation of the cervix, because should the vagina be opened the patient would undoubtedly get peritonitis. Wertheim lays great weight on draining the subperitoneal spaces, and unfortunate results were due to this closing up. He no longer tries to expose the ureters at the beginning of the operation, but looks for them after dividing the infundibulo pelvic ligaments. He does not try to separate the bladder down to the vagina at the beginning of the operation, but he separates the bladder from the uterus, and after the ureters have been fully exposed, the bladder from the vagina. By doing so there was less risk of injuring the ureter, and it was possible to go still further out to the sides, and in cases where the bladder is fixed to the uterus or vagina a finger can be passed from the side underneath the cancerous part, and so an idea obtained of how much cancerous tissue has to be cut through.

Dr. Thompson asked whether it would not be advisable to remove the kidney on the side of an injured ureter as many people got on quite well with only one kidney.

The President said, with regard to the technique of the operation there were two modifications—one, originally taught by Wertheim, in which the first step was to separate the bladder from the uterus; the other by Bumm, in which the infundibulo pelvic ligament was divided, and the peritoneum at the base of the broad ligament cut through, after which the ureter was easily seen. It seemed to him (the speaker) simple to find the ureter by this method, and it could then be traced into the cancerous mass. The only case where he thought this procedure was not preferable was where there was extensive involvement of the bladder wall, and this could be found out by cystoscopic examination. If the bladder wall was found to be clear he could not see that the two procedures were comparable—the one exposed with one cut of the scissors a long part of the ureter, while the other necessitated tunnelling under the broad ligament. In regard to five cases which he had recently seen, the first one was hopeless, and the patient died a fortnight after. As soon as he had divided the infundibulo-pelvic ligaments he found the whole of the pelvis from side to side perfectly solid. There were glands all over the place, and the ureter was dilated. If the operation had been done the ureter would certainly have been cut across. The second case was found to be hopeless by means of the cystoscope, the whole bladder wall being involved. Of the other cases he had shown to-night, in one he had taken a good piece of the rectum away. The last case was a favourable one. As regards drainage through the adominal wall he could not see the object of it. He had not drained in that way for a long time except in cases of general peritonitis.

Dr. Tweedy in reply, said he did not aim at curability, but the relief of symptoms. The statistics which went to demonstrate the curative powers of the operation were most fallacious, and men who were too careful of statistics must have refused operation on cases where relief could be obtained. He was surprised at the great number of cases of ureteral fistulæ and cystitis met with in Wertheim cases, and this in spite of the most elaborate aseptic precautions and preparation of the patient. The preparation can be carried a great deal too far. Personally,

he thought a fortnight a shocking interval to leave a woman without operation, and tended to make the chances of recovery graver and less hopeful. Therefore, he would say an interval of two or three days should be the utmost to leave a patient without operating, as every hour is only adding to the chances of metastasis. He said Wertheim made a mistake in not using gloves, as in this operation especially gloves are required. If cancerous tissue gets on the hands, the bladder, ureter, and cellular tissue around the ureter may be infected, and he could quite understand cystitis and ureteral fistulæ occurring. Drainage of the cellular tissue is greatly advocated by Wertheim. On the other hand, many great authorities—for instance, Dr. Lockyer, of London—hardly use drainage at all. He does not operate on 90 per cent. of patients, but selects his cases. In other words, he looks for early cases of cancer. If it is an early case it is not necessary to drain; if a late it must be drained. But early or late, gloves are used. It is necessary for Wertheim to drain, but not for Lockyer. Removal of the kidney has been done very many times. Of course it adds greatly to the shock of a patient who is already in a wretched condition. His objection to the President's method was that he was afraid of going too deep down. The ureter retracts towards the cervix and gets buried in a mass of cancer tissue. He said he was very fond of draining through the abdominal wound, and in this operation there was no better channel—the plugging in the subperitoneal spaces passes through the vagina, but was completely closed off from the pouch of Douglas, and this he drained with the gauze through the lower angle of the wound. He thought the gerat feature of Wertheim's operation was the complete shutting off of the peritoneum with drainage, and abdominal drainage was also at times a great advantage.

REVIEWS OF RECENT BOOKS.

PUERPERAL INFECTION. By Arnold W. W. Lea, M.D., B.S., B.Sc., F.R.C.S. (Eng.). Oxford Medical Publications, 1910. Henry Frowde and Hodder and Stoughton. Price 25/-.

The author states that his object has been to describe the complex manifestations of Puerperal Infection with scientific precision as far as this is attainable. Let it be said at once that he has certainly been successful in doing this. The book is an elaborate monograph on the subject and is wholly worthy of its author, and must represent the outcome of a vast amount of close and discriminate reading of the literature. So thoroughly has the selection been made that the result is to produce a valuable record of the present-day views on this important subject. The monograph is quite monumental and consists of 359 pages and it is divided up into 16 chapters. But in spite of size it is extremely readable and is well illustrated, the plates, many of which are coloured, being 35 in number.

The volume opens with a short historical review, followed by a chapter devoted to definition and classification. This chapter is short and is an interesting and valuable one. He avoids the time-honoured division into sapræmia and septicæmia; and the term supræmia is mentioned only to be discarded in favour of toxæmia, which more truly indicates that the condition is one of wound infection not necessarily limited to saprophytes. The following is the classification adopted by the author, but as he points out it must be borne in mind, however, that all possible combinations exist, and that localised infective processes are always attended by some degree of toxæmia or septicæmia :—

1. Localised inflammation at the entrance point of infection as a result of wounds of the perinaeum, vulva, vagina, cervix or of the mucous membrane of the uterus.

2. Infective processes arising as a result of extension of inflammation to the surrounding tissue by the lymphatic or vascular channels, or by direct continuity of surface.

(a) Infection of vulva, e.g., Vulvar lymphangitis. Phlegmenorrhœa.

(b) Infection of vagina, e.g., Gangrenous vaginitis.

(c) Infection of the uterus, e.g., Lymphatic metritis. Thrombophlebitic metritis. Dissecting metritis.

(d Infection of the appendages, e.g., Salpingitis, etc.

(e) Infection of the pelvic cellular tissue.

(f) Infection of blood vessels, e.g., Thrombosis. Phlegmasia alba dolens.

3. The general conditions of the body produced by infection. These are of two main types :—

(a Toxæmia. In this condition the soluble product of bacterial activity alone enter the blood and lymph streams.

(b) General blood infection or bacteriæmia. 1. Septicæmia. In this condition the organisms circulate freely in the blood stream, multiplying in the capillaries and blood forming organs. 2. Pyæmia. The organisms in this condition only enter the blood stream from time to time as infective emboli.

Both forms of blood infection are necessarily attended by a variable degree of toxæmia: but on the other hand, toxæmia frequently exists in the absence of any penetration of organisms.

Chapter III is devoted to the statistics of the frequency, mortality and morbidity of puerperal infection. The figures revealed do not show altogether satisfactory results which may be summarised under the following conclusions:—

1. That the mortality from puerperal infection in Lying-in-Hospitals has been reduced to ·1 or ·2 per cent.
2. That outside Lying-in-Hospitals the mortality from puerperal infection has shewn little diminution, and that it is especially high amongst women upon whom some operative interference has been undertaken.
3. That the morbidity in hospitals is still between 10 and 20 per cent.
4. That in addition to the loss of life, there is a considerable percentage of women suffering from chronic pelvic disease, the result of minor degrees of infection. These form a large proportion of the patients applying for treatment at Womens' Hospitals.

This portion of the book is then followed by a consideration of the naked eye appearances, and bacteriological findings in the normal puerperal state. Then follow chapters on the bacteriology, etiology and pathology of infective conditions. These sections on the bacteriology of the normal and infected genital passages form a clear and wide review of an extremely difficult subject, and include the methods of bacteriological investigation of the lochial discharges. The section on the pathology of the subject forms a large part of the volume, and is a very valuable one occupying about 50 pages, and includes many illustrations. This part of the subject is considered under the following heads. The general pathology including—

(a) The course of local infection.
(b) Toxæmia.
(c) General blood infection.

The author then considers Localised infection under the subheadings—

(a) Local infection of the generative tract.
(b) Lymphatic infection.
(c) Phlebitic infection.

Under the heading of local infection of the generative tract he includes the condition of infective endometritis, by some called puerperal endometritis. In a later part of the book he uses the term "septicæmic form of endometritis" where the "infective endometritis" is due to the streptococcus pyogenes. This is perhaps unfortunate, for although in some cases a general septicæmia may supervene, yet this is not what he means to imply by the term.

It is well, in our opinion, to lay stress upon this variety of infection because by some it is regarded as the lesion in some cases of supræmia on account of the blood in such cases being sterile. Equally on the other hand by some owing to the presence of streptococci pyogenes in the uterus it is regarded as an example of septicæmia. This divergence of views is the more unfortunate as it gives rise to absolutely false ideas as to the value of certain treatments, and as to the mortality in septicæmia. For example, estimates by different observers of the rate of mortality of puerperal 'septicæmia' vary greatly. Kronig and D. Williams record a 7 % mortality only; on the other hand, a series of 100 cases reported by the American Gynæcological Society yielded a mortality of nearly 30 %. But even this higher figure is much below that which is obtained from our experience of puerperal septicæmia, if we mean by it that the organism exists and lives in the blood stream. It is obvious that these observers are speaking of a different condition when they use the term.

The section on General Infection includes the subjects of toxæmia, septicæmia, and pyæmia.

The practical and clinical side is then emphasised in the 89 pages devoted to symptomatology and diagnosis. In this section the symptoms are considered as a whole, and he lays special stress on the statement that in all cases in which specific organisms circulate in the blood, the symptoms are essentially due to toxæmia, although this condition not infrequently exists without any infection of the blood stream. In the early stage of Puerperal Infection it is often impossible to distinguish with certainty between the symptoms due to pure toxæmia and those of septicæmia, as in both forms of infection they are essentially due to the bacterial toxins. Each type of infection is then separately considered. He believes that the presence of streptococci in the lochia cannot in itself be regarded as an indication of septicæmia.

In attempting to differentiate between Saprophytic Streptococci and the Pathogenic varieties, in his opinion the number of organisms, the rate of growth, and the length of chains do not afford any reliable information, but the hæmolytic power of the streptococcus is a valuable indication of its pathogenic capacity.

Under the heading of Progression in Toxæmia and Septicæmia some valuable facts are stated. Thus he states that the presence of organisms in the blood is not to be regarded as necessarily fatal, streptococci and staphylococci having been frequently found circulating in the blood in cases which have recovered completely. He quotes Canon who reports a proportion of recoveries amounting to 25 %, and Lenhartz 17 %, and he believes that probably in about 20 % of cases recovery may be anticipated. This is an important and encouraging statement and is in accord with the general experience in some rare and isolated cases. It would be interesting to know how the above cases were treated, particularly whether a serum was or was not employed.

A large portion of the book is devoted to Treatment and all the various methods are stated and dicussed.

With regard to prophylaxis, in his opinion it is certain that in normal labour vaginal douches are unnecessary, the essential feature being to carry out complete antiseptic treatment of the vulva. As to the use of gloves he believes that experience has shewn that gloves cannot be regarded as an absolutely reliable means of preventing the conveyance of infection, as unless great care be taken organisms from the vulva may readily be conveyed into the deeper passages, and that the general adoption of gloves is also attended with various drawbacks.

With regard to actual treatment, among the various methods discovered are the uses of the curette and hysterectomy, and an absolutely unbiassed representation of the various schools is given. A table shewing the results of hysterectomy is also included, based upon 291 cases of hysterectomy for various forms of puerperal infection, with a total death rate of 51·1 %. The highest mortality occurred in cases operated upon in the acute stages, amounting to 70 %. If peritonitis was preesnt at the time of operation the death rate amounted to 67·3 %, results which are considerably worse than those obtained by incision and drainage. In cases of perforation of the uterus, of localised purulent infection, of suppurating myoma and placental retention, more favourable results were obtained, the mortality not exceeding 35 %.

A special section is devoted to the use of serum and vaccine. To this section more space might with advantage be allotted. With regard to the use of serum the author concludes that at the present time the value of the use of antistreptococci serum is questionable. "At the same time, the possibility of influencing the course of infection by this method has been amply demonstrated, and it may be hoped that before long a more efficient serum may be introduced." We notice that the serum he refers to is the polysalent variety. But he does not mention the monovalent antistreptococcus pyogenes variety.

When considering the value of vaccine he points out that the organism must be obtained from the patient and the vaccine made from this. The organism can be obtained from the uterus long before it appears in the blood, and so valuable time

can be saved. He expresses no final opinion on the value of vaccine treatment in cases of general infection.

The author is thoroughly to be congratulated on a most valuable contribution of the present views with regard to this important and interesting subject. J. B.

GYNÆCOLOGY FOR NURSES AND GYNÆCOLOGICAL NURSING. By Comyns Berkeley, B.A., M.B., B.C. Cantab., F.R.C.P., M.R.C.S. Pp. 114. London: The Scientific Press, Limited. Price 2/6 net.

Every nurse who has her work at heart demands some knowledge of the ailments of her patients, as well as detailed instruction in their management and nursing, and Dr. Comyns Berkeley has given in small compass a much needed brochure for nurses on the more common diseases of women. It represents lectures given at the Middlesex Hospital and the Chelsea Hospital for Women for twelve years past and may, therefore, be taken to represent the considered views of the author as to what is required for the purpose. Probably no two teachers would ever agree as to the essentials for a course of nursing lectures and nothing would be easier than to pick out points for criticism. For the most part this manual is too tabular and of the boiled down text-book order, and, for example, on a subject like dysmenorrhœa far too speculative and too detailed to be of real value. The comparative table of the symptom of the principal forms of dysmenorrhœa is an extreme instance of these faults. Here we find spasmodic, obstructive, membranous and primary, acquired and secondary congestive dysmenorrhœa differentiated from one another by the relation of the pain to the first menstruation, of the pain to the time of menstruation, of the pain to the flow, by the duration, character and position of the pain, by the amount of the flow and by the effect of heat and rest. This appears to us to be classification gone mad, and we cannot believe that Dr. Berkeley or his nurses or anyone else could pigeon-hole cases of dysmenorrhœa in this way. Otherwise the gynæcology is of a simple and elementary order and well suited to a class of nurses, though more caution ought to be exercised in regard to the symptoms ascribed to some of the minor ailments. We wonder if the author really believes that a simple retroversion of the uterus causes constipation and painful defæcation due to pressure of the body on the rectum and frequency of micturition due to pressure of the cervix on the neck of the bladder and dysmenorrhœa from congestion and malposition and so on. We have serious doubts as to whether it is advisable to teach this to any class of women and more especially to nurses, whose advice is often sought by their own sex before taking a medical opinion.

The nursing section is much less open to criticism and will be found exceedingly valuable by those who have only occasional experience of gynæcological cases. Unfortunately everyone is a law unto himself as regards minutiæ of nursing technique and hence only the main points will be accepted generally, but Dr. Berkeley fully recognizes this and his tables for feeding and nursing a patient after abdominal operations are given only as showing how a patient may be treated. As he says, "Every surgeon has his particular method." This little book meets a want and as such we welcome it, but we feel sure that a little pruning and revision will greatly add to its usefulness.

WOMAN AND MARRIAGE. A Handbook by Margaret Stephens, with a preface by Dr. Mary Scharlieb and an introduction by Mrs. S. A. Barnett. Pp. 271. London: T. Fisher Unwin. Price 3/6 net.

Though this book is scarcely of the kind reviewed in our pages it has sufficiently marked characteristics to place it at once in a different category to the ordinary book

of advice to the expectant mother, and for this reason deserves more than a passing notice at our hands.

Except for a tendency to wander into the realms of speculation the writer on the whole gives a very sensible account of the physiology and hygiene of the reproductive life of woman and of the care of the infant. But our object in directing our branch of the medical profession to this work is more on account of the frank and straightforward way in which many of the problems of married life are discussed. It is all the more valuable to the profession that the discussion is not confined to matters of physiology and hygiene alone, but treats also of many ethical questions and more especially from the point of view of the wife and mother.

In the opening chapter, "The Wisdom of a Child," is a carefully reasoned plea for greater confidence between parents and children on matters of sex, together with suggestions as to how such confidence may best be developed. "The dangers of knowledge are not to be compared with the dangers of ignorance" is quoted by the writer from Bishop Whately and the truth and appositeness of this quotation in regard to the parental education of boys and girls in sexual questions will be generally upheld. In the succeeding chapter this advice is further emphasised; when puberty is reached the girl "has much need of the right kind of care and instruction that a mother who is wise as well as loving, who is 'fond' but the reverse of 'foolish' will not fail to give her."

The most striking chapters are those on "The Marriage Relation" and "The Question of Parenthood," and here undoubtedly more difficult and thorny questions are discussed. Whether the writer's views are accepted or not every reader of this book will feel that the subject has been handled from a high ethical standpoint and in a way which cannot but do good when studied by those for whom it is meant. The book is one which ought to be known to everyone who may be called on to advise the young wife and prospective mother.

GYNÆCOLOGICAL THERAPEUTICS. By S. Jervois Aarons, M.D., M.R.C.P., with a foreword by Sir John Halliday Croom. Baillière, Tindall & Cox. London, 1910. Price 5s.

This book deals with the treatment of the diseases of women by means other than surgical operations. "It cannot be doubted," says the author, "that gynæcology becomes more and more surgical every day; but has not the pendulum swung too far in this direction? Is it not time that a halt should be called and that medical treatment should be given a trial before resorting to operation?" The author goes through the diseases of women anatomically arranged. Where the treatment is purely surgical, he says so; and where other therapeutic measures are available he describes them fully. He then deals with subjects which do not fit conveniently into an anatomical arrangement, such as the disorders of menstruation, gonorrhœa, sterility and dyspæreunia. There are also chapters on douching, vaginal packs, pessaries and treatment by vaccines and sera. At the present time there are only a few conditions, namely, acne, erysipelas and furuncularis (not diseases peculiar to women by the way) which, in the author's opinion, lend themselves to vaccine treatment by the practitioner. He thinks, however, that vaccine therapy is likely to replace serum therapy ultimately. He rather favours the administration of serum by the mouth as recommended by Montgomerie Paton in various inflammatory conditions. It is significant that Dr. Aarons has not thought it necessary to devote any space to treatment by x-rays, Radium or electricity; and also that he does not recommend massage of the pelvic viscera. A very valuable feature of the book is the number and variety of good formulæ it gives for the

composition of mixtures, lotions, unguents and powders. We have already found these very useful. With this little volume at hand, all strain is removed from the pharmacological memory and ingenuity of the gynæcologist.

So much for description. As to criticism, the defects of the book are due to the inherent difficulties of the task the writer has set himself. Is it possible to write in a perfectly satisfactory manner on "Treatment"? An author cannot differentiate the measures appropriate in various circumstances without introducing fragments of etiology, pathology and nosology. And these, removed from their usual setting in the author's mind, are bound to lead to misconception as to his meaning. Again: Dr. Aarons is hampered by the anatomical classification which has hitherto been used by nearly all writers on the diseases of women. This traditional arrangement not only involves much repetition, but it inevitably spoils every description of the results of pelvic infection, and gives the impression that processes like ovaritis and salpingitis are diseases with an independent clinical existence. As this is a book on Therapeutics we should like to see Dr. Aarons, in a second edition, adopt a therapeutic basis of classification. W. E. F.